

American Cinematographer

International Journal of Film and Video Production Techniques

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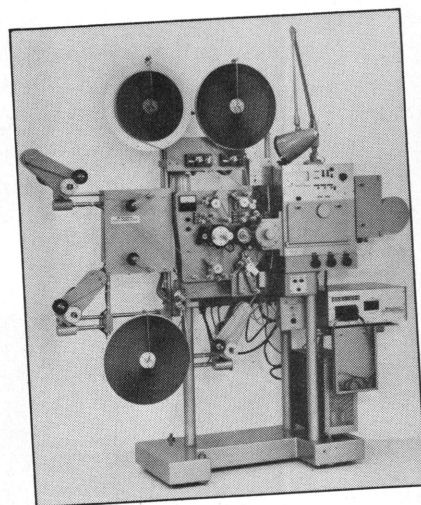
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ON THE COVER: Various views of the Golden Eagle Award trophy of the Manila International Film Festival. Held for the first time (January 18–29, 1982), the lavish festival attracted films from 58 countries.

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AMERICAN CINEMATOGRAPHER, APRIL, 1982

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CINEMA WORKSHOP

By ANTON WILSON



Most studies indicate that an all-electronic production will cost less than film and can be completed in a significantly shorter time with fewer hassles.

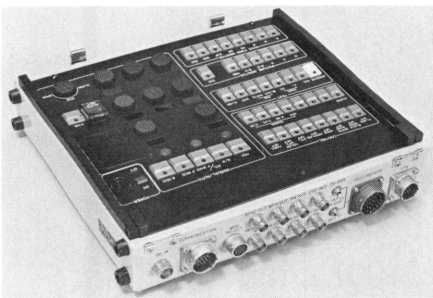
Many producers still prefer to shoot film, even though the production will eventually become a video tape. This preference for film is based upon two factors: The superior "look" of film and the refined techniques associated with film production. Addressing themselves to these two aspects, Ikegami Electronics has designed a new camera to lure film producers into video production.

The design intent of the Ikegami EC-35 is quite evident. Its initials stand for Electronic Cinematography and the "35" undoubtedly indicates its intended purpose to replace 35mm film cameras on productions destined for television. Ikegami spent much time researching and developing the EC-35. After three years and five generations of prototypes, the present EC-35 incorporates many unique circuits and innovative features that should appeal greatly to the film community. The EC-35 succeeds in achieving both design goals; i.e., to come closer to a "film look" and to handle more like a film camera.

THE "FILM" LOOK

Don't let anyone in the video industry fool you. The buzz team "film look" is nothing more than an euphemism for an image that is free from the problems that make most video look plastic or "electronic." Problems like lag, comet-tailing, white clipping and lack of luminance range. The reason film looks better on tel-

The computerized set-up box for the EC-35 can be unplugged from the camera after it has been used for routine maintenance or it can be used creatively to tailor a specific look for the production.



The Ikegami EC-35 is a video camera designed for cinematographers accustomed to working in film. It has a complement of five prime lenses and a 5:1 zoom plus matte boxes and a follow focus system so that it can be used like a film camera. The electronics in the EC-35 are highly automated and designed to simulate the look of film especially in the way it responds to highlights.

evision than an electronically produced image is that film acts as a buffer or filter that removes those extreme exposure elements that would otherwise precipitate the aforementioned video vices. The camera designers can say they are trying to achieve a "film look," but they are really just continuing the evolutionary process of perfecting the video camera.

The goals are to increase the luminance range, eliminate comet-tailing and blooming, and achieve the tonal subtleties of the film image. The Ikegami EC-35 represents a major step toward these goals.

The EC-35 starts with $\frac{2}{3}$ " low-capacitance diode-gun Plumbicon® pick-up tubes. These are the latest technology tubes and are capable of extremely improved resolution and detail. A dynamic boom focus circuit produces sharp pictures from corner to corner by improving corner focus. The image enhancement circuits of the EC-35 also represent improvements to the state-of-the-art. Out of band aperture correction signals are proportionately mixed with image enhancement to produce a very sharp, yet pleasing image. More conventional image enhancement produces an artificial edgi-

ness which most cinematographers consider "plastic" or similar to a child's coloring book. The EC-35 produces a well detailed, yet natural picture. The entire camera circuitry, including the pre-amps, makes prolific use of low noise devices, resulting in a S/N ratio of over 57db rms, which means a very quiet image with little noise (grain). The method used to calibrate or "set-up" the EC-35 will be covered later, as that has more to do with the unique and innovative handling of the camera. However, the set-up procedure incorporates some very ingenious new technology that facilitates more accurate camera alignment. This results in consistently optimal image quality. For example, registration can be easily set up with exceptional accuracy, due to a new type of geometry corrector based on quadrant control.

These improvements create a higher quality image, but what about those video evils of comet-tailing, blooming, lack of shadow and highlight details, et al? The EC-35 attacks each of these problems with some very unique circuitry, resulting in an unusually wide dynamic range.

Continued on Page 340

“For all those rugged location shoots where there’s room for one camera only, there is no camera I trust more than my CP-16R.”

Richard Kidd
Cinematographer



Richard Kidd in Jordan.

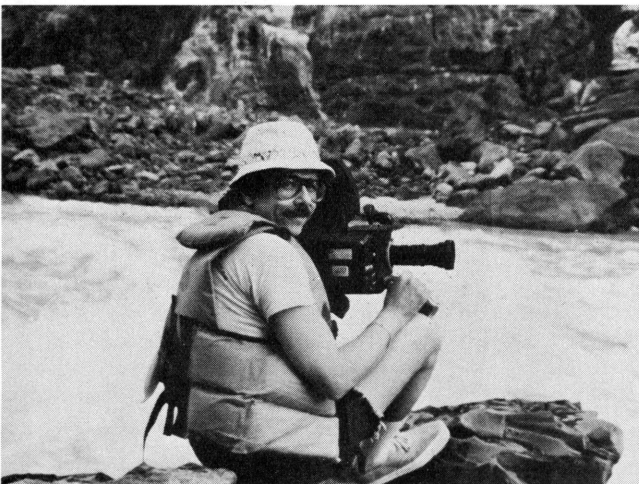
In the course of the last ten years, documentary and newsfilm cameramen all over the world have come to depend on the CP-16 as the most trusted and reliable 16mm single/double system sound camera around, bar none. Richard Kidd, president of the Dallas-based production company that bears his name, is no exception.

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Kidd filming the Roman ruins in Jerash, Jordan, with his CP-16R.



Kidd and his CP-16R are perched on a small cliff overlooking Chile’s Bío Bío River during the filming of “River of Thunder,” a TV documentary.

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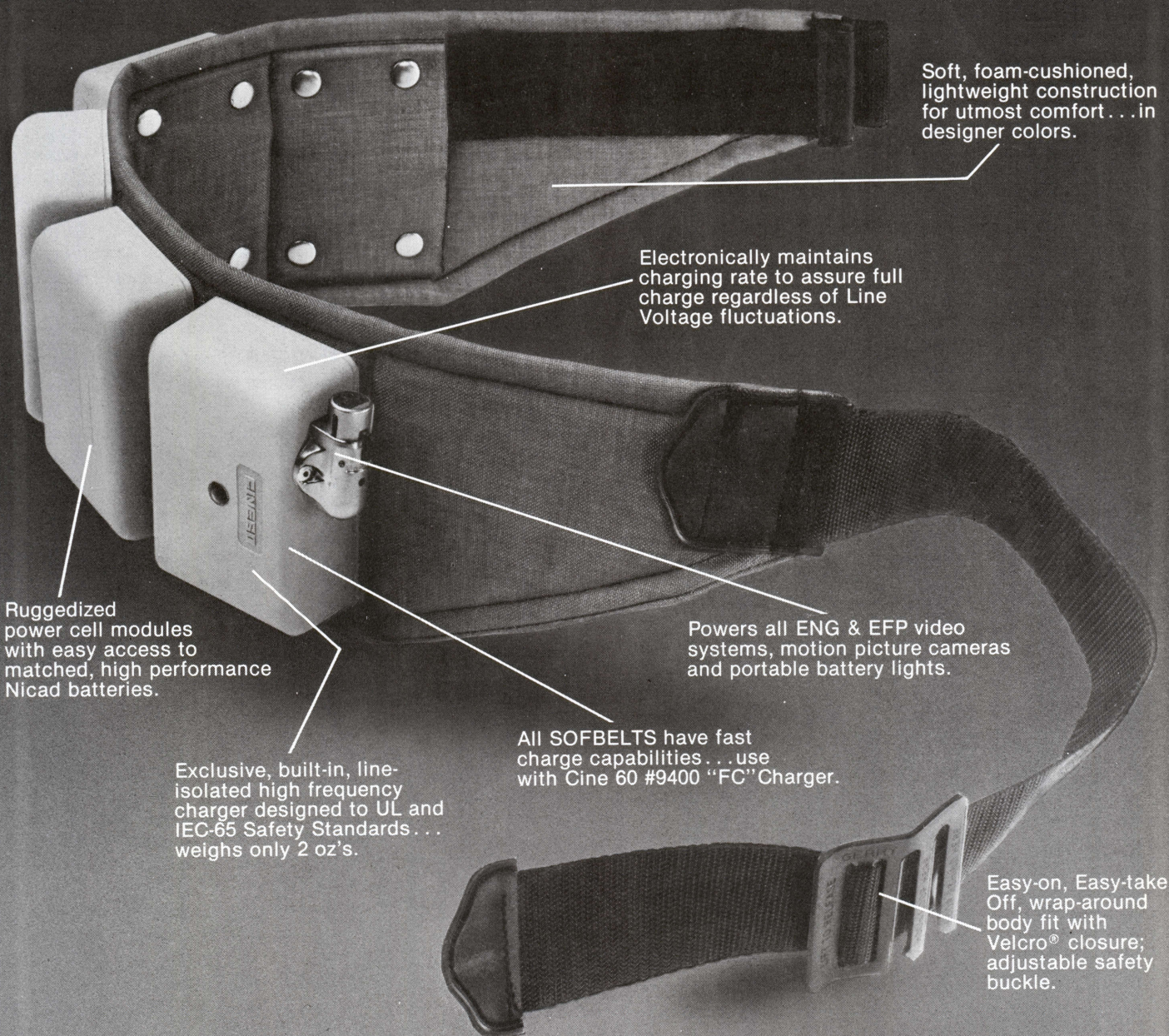
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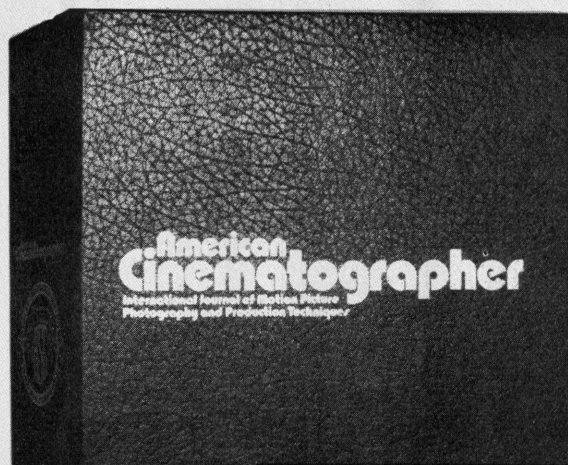


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THE BOOKSHELF

By GEORGE L. GEORGE

THE REFERENCE SHELF

An authoritative and thorough compilation, the 1980 ANNUAL INDEX TO MOTION PICTURE CREDITS covers all films shown in the Los Angeles area during the year, based on Academy of Motion Picture Arts and Sciences logs. Fully cross-referenced, this basic record provides all pertinent data on production, release, director, writer, cinematographer, cast and crew (Greenwood Press, 88 Post Road W., Westport, CT 06811; \$150, standing order \$115).

A factual insight into the film industry by leading trade journalists ably edited by David Pirie, ANATOMY OF THE MOVIES reveals the inner workings of a complex entrepreneurial juggernaut, with individuals forever swamped in economic, logistic and personal predicaments (Macmillan \$15.95).

In MOTION PICTURE DISTRIBUTION HANDBOOK, Joseph F. Robertson alerts independent filmmakers to the intricacies and rewards of marketing their movies, and discusses demographics, contracts, copyrights, advertising and other requirements (TABooks, Blue Ridge Summit, PA 17214; \$19.95).

An historic as well as a bibliographic survey, ANIMATION: A REFERENCE GUIDE by Thomas W. Hoffer presents a significant, comprehensive review of the genre, listing and describing publications of all types dealing with animation. This is a choice source of general information on that creative medium (Greenwood Press, \$35).

In FILM COSTUME: AN ANNOTATED BIBLIOGRAPHY, Susan Perez Prichard provides ready access to the vast literature of movie fashion. Indexed and summarized are some 4,000 books and periodicals of the last 70 years. It is a first in its field and an invaluable research tool for scholars and buffs (Scarecrow \$32.50).

GENRES AND TECHNIQUES

In SPECIAL EFFECTS: HIGH TECH FILMS, David Hutchison discusses the spectacular achievements of such films as *Alien*, *Altered States*, *Flash Gordon*, *Star Wars*. Interviews with SFX creators, descriptions of Disney's calculating camera, sodium system traveling mattes and other techniques provide unique information on current and future gadgetry

(Starlog, 475 Park Ave. S., NYC 10016; \$8.95).

Roger Crittenden's comprehensive guide, **FILM EDITING**, offers expert advice on the editing process, while relating it to the other areas of filmmaking. Tape editing is also discussed in this excellent manual (Thames & Hudson \$9.95).

How to make a profitable low-budget film is explored by Robin Cross in **THE BIG BOOK OF B MOVIES**, an informative and affectionate guide to the quickies that shrewd producers, innovative directors and resourceful cinematographers delivered to appreciative audiences (St. Martin's \$18.95/10.95).

Philip Mosley, in **INGMAR BERGMAN, THE CINEMA AS MISTRESS**, scans incisively the director's early life and private concerns as the key to his cinematic innovations. This penetrating study reveals the subtle psychological stimuli of Bergman's highly personal vision (Boyars, 33 Main St., Salem, NH 03079; \$16).

In **FILM AND DREAMS**, Ingmar Bergman's exploration of hypnologic phenomena as a film element is linked to the experience of film viewing in editor Vlada Petric's and other contributors texts in this challenging collection of essays (Redgrave \$11.80).

The frustration and neglect that burdened F. Scott Fitzgerald during his Hollywood screenwriting days are detailed by Matthew J. Bruccoli in **SOME SORT OF EPIC GRANDEUR**, a discerning and compassionate narrative of the ill-starred novelist's life (Harcourt Brace Jovanovich \$25).

In the first volume of an exceptionally perceptive biography, **CLIFFORD ODETS: AMERICAN PLAYWRIGHT**, Margaret Brennan-Gibson traces a searching and lovely portrait of Odets from his debut as a dramatist to his early years as a Hollywood scriptwriter (Atheneum \$30).

Critic John Simon's systematic assault on movies resumes its corrosive course in **REVERSE ANGLE**, a collection of his reviews in various periodicals. Only one out of the book's 250-odd film critiques metes out a degree of praise amid a deluge of invective, sarcasm, arbitrariness, misunderstanding and incomprehension delivered with self-satisfied dogmatism. His literate style and studied expertise serve only to underline his jaundiced views (Potter/Crown \$17.95).

A leading contemporary film theorist, Christian Metz, explores in **THE IMAGINARY SIGNIFIER** the relationship of cinema with psychoanalysis, and "the op-

erations of meaning in the film text." While these abstract considerations may be difficult to understand, their implications will undoubtedly trickle down in time to a practical level (Indiana U. Press \$22.50).

THE DIRECTOR'S CRAFT

G. K. Hall issues two new volumes in its scholarly "Guides to References and Resources" series: **FRITZ LANG** by E. Ann Kaplan (\$45) and **JACK CLAYTON** by Georg Gaston (\$25). Well-researched and fully documented, each includes a biography, a critique of achievements, a full filmography, an annotated guide to writings, archival material and related data.

In **HOWARD HAWKS**, Robin Wood discusses the unmistakable stamp of the director's personality on each of his more than 40 films, his ability to blend story, characters and situation into a cohesive whole that engaged and held the audience's attention (NY Zoetrope, 80 E. 11 St., NYC 10003; \$10.95).

The late Frank Borzage is expertly praised by Frederick Lamaton in **SOULS MADE GREAT THROUGH LOVE AND ADVERSITY**. The book stresses the lyrical and melodramatic themes of the director of such classics as Janet Gaynor's *Seventh Heaven* and Marlene Dietrich's *Desire* (Scarecrow \$12.50).

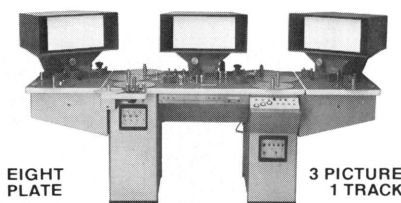
A stimulating study by William Rothman, **HITCHCOCK: THE MURDEROUS GAZE**, uses frame enlargements and action descriptions to reveal Hitchcock's method of cinematic composition. Dialogue, camera movement and music combine to create in the spectator a sense of the fated nature of human emotions (Harvard U. Press \$27.50).

In **THE FILMS OF CARL-THEODOR DREYER**, David Bordwell discusses the innovative aspects of Dreyer's films, particularly the use of discontinuous time and space in his complex, individualistic style (U. of California Press \$29.50/11.95).

Peter Lehman and William Luhr, in **BLAKE EDWARDS**, examine perceptively the style, contents and techniques of Edwards' intriguingly dissimilar films, probing the intense ideological concerns that lurk behind their sophisticated facade (Ohio U. Press \$18.95/8.95).

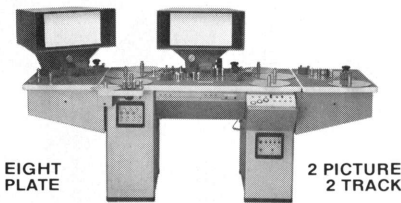
A tribute to British director HUMPHREY JENNINGS by daughter Mary-Lou Jennings secures his reputation as painter and poet as well as filmmaker, whose wartime documentaries (*Listen to Britain*, *A Diary for Timothy*) brought a new dimension to the genre (NY Zoetrope, \$10.95).

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3 PICTURE 1 TRACK



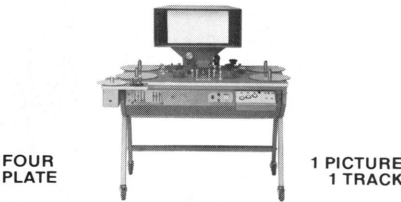
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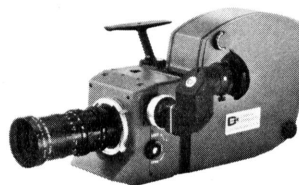
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CP-16R



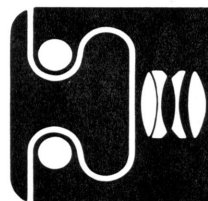
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B&S Equipment Journal

VOL. 26

APRIL-MAY, 1982

VOL. 312

CLASSIFIED SPECIALS

(A USED EQUIPMENT SALE)

35MM CAMERAS

ARRIFLEX IIC w/const-speed mtr, hard front, swing away matte box, Super-Speed lenses 28mm T1.8, 35mm T1.3, 55mm T1.1, 85mm T1.7, 2 ea 480' mags, cables, battery \$15,250.00
MITCHELL NC w/110V sync, 220V sync, 110V AC/DC vari-speed mtrs, 2 ea 1000' mags, WA & std matte box, finder, follow focus & Baby blimp . . . Collector Item \$6,750.00
MITCHELL BNCr, spinning mirror reflex, CP crystal mtr, 4 ea 1000' mags, 30VDC battery & chgr., all accessories, 20-120mm Angenieux \$26,500.00
AUTOMAX G-3 body only \$750.00
B&H Eyemo, single frame mode . . \$350.00

16MM CAMERAS

ARRIFLEX "M," 2 ea 400' mags, const-speed mtr, 12-120 Ang, cables and case \$4,300.00
B&H 70DR w/25mm f/1.4 lens . . . NEW \$625.00
BOLEX EBM, crystal mtr, battery, chgr, \$1,850.00
ECLAIR ACL, CP crystal mtr, 2 ea 200' mags, finder, handle, battery, cables, 12-120mm Ang., \$7,800.00
ECLAIR ACL II, LED, 2 ea 400' mags, 2 ea battery & chgr, CA-1 & Arri "B" adapter, 10-150mm Arri "B" mt \$21,500.00
FASTAX WF4ST w/50mm lens. . \$1,500.00

PRIME LENSES

ARRIFLEX STANDARD MOUNT

5.7mm f/1.8 Kinoptik \$975.00
12.5mm f/2.5 Kinoptik \$275.00
14.5mm f/3.5 Angenieux \$525.00
16mm T2.4 Distagon \$925.00
16mm f/2.0 Cinegon \$295.00
25mm f/1.4 Cine-Xenon \$275.00
28mm f/2.0 Cine-Xenon \$395.00
40mm f/2.0 Cine-Xenon \$435.00
50mm f/2.0 Cine-Xenon \$375.00
75mm f/2.0 Cine-Xenon \$375.00
125mm f/2.5 Cine-Omnitar \$195.00
150mm f/3.5 Kilfitt-Kilar \$275.00
200mm f/3.5 Cine-Omnitar \$250.00

250mm f/3.2 Cine-Omnitar \$275.00
500mm f/5.0 Cine-Omnitar \$875.00
600mm f/5.0 Cine-Omnitar \$950.00
800mm f/5.0 Cine-Omnitar \$1175.00
1000mm f/6.3 Cine-Omnitar . . . \$1725.00
1000mm f/4.5 Cine-Omnitar . . . \$2400.00

MATCHED LENS SETS

Set of Ultra "T" High-speeds, 9mm T1.35, 12.5mm T1.25, 16mm T1.25, 25mm T1.25 in BCP mount for CP16R \$3,500.00
Set of Ultra "T" High-speeds, 9mm T1.35, 12.5mm T1.25, 16mm T1.25, 25mm T1.25 in Arri bayonet mount \$3,750.00
Set of Cooke-Kinetals 17.5mm T2, 25mm T2, 37.5mm T2, 50mm T2 in Arri standard mount \$1,175.00
Set of Mitchel Super Speeds 18mm T1.8, 35mm T1.3, 55mm T1.1, 85mm T1.7 in BNCr mount for hard front Arri . \$4,500.00

ANGENIEUX ZOOM LENSES

9.5-57mm T2.4 Arri "B" mt. . . \$2,875.00
10-150mm T2.3-3.2 Arri "B" mt . \$3,350.00
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9.5-95mm f/2.2 "C" mt w/7 1/2" finder \$1,950.00
9.5-95mm f/2.2 "C" mt w/1" finder \$1,950.00
12-120mm f/2.2 "C" mt. \$1,250.00
12-120mm f/2.2 Arri std mt. . . \$1,650.00
35-140mm f/3.5 Mitchell MKII mt \$1,750.00
25-250mm f/3.2 Arri std mt w/zoom motor. \$5,950.00
20-120mm T2.9 Arri mt & BNCr mt \$9,975.00
9.5mm-57mm T2.4 BCP mt . . . \$2,995.00
10-150mm T2.3-3.2 BCP mt. . . \$3,450.00

CAMERA ACCESSORIES

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CP Orientable finder extender . . \$350.00
CP PLC-4A Lexan 400' mags . . . \$225.00
Studio rig, blimp for 35 BL & 20-120 Ang custom \$2,000.00
MITCHELL 16mm 400' mags . . . \$150.00
B&H 16mm Tracking finder . . . \$225.00
ARRIFLEX 16mm 1200' BL mag \$1,350.00
Countryman Portadolly \$450.00

MITCHELL tripod legs. \$175.00
ARRIFLEX 35mm tripod & head . \$350.00
ARRIFLEX 35mm baby legs . . . \$165.00
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MITCHELL 35mm GC High-speed mtr & control \$350.00
THOMAS Stomp-up "Sputnik" dolly \$1,900.00
FAX "SENIOR" animation stand \$5,600.00
ITE T-5 dolly & H-1 head \$300.00
CRYSTASOUND Amplifier CP16 . \$750.00

SOUND EQUIPMENT

NAGRA IV-BL, 7 1/2 IPS, preamps, crystal, case \$2,950.00
MOLE-RICHARDSON mic-boom & perambulator \$1,650.00
PRECISION 600RL 35mm Opt-sound reader. \$450.00
MOVIOLA SRO-16 Opt-sound reader \$210.00
MOVIOLA SRC-35 Mag-opt reader . \$320.00
MOVIOLA SRM-35 Mag-sound reader \$210.00
MOVIOLA SRM-16 Mag-sound reader \$145.00
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VIRGO 2-channel sound amplifier . \$120.00

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MOVIOLA 35mm UC-20-S cutter \$3,250.00
MOVIOLA 16mm UL-20-S picture & 2 ea sound. \$4,250.00
MOVIOLA M-82 16/35 combi tape splicer \$225.00
MOVISCOP 16mm film viewer . . \$225.00
GRISWOLD C-3 16mm splicer . . \$59.50
RIVAS 16mm diagonal splicer . . \$125.00
HFC TSD-16 diagonal splicer . . \$125.00
NUEMADE 16mm footage counter. . \$75.00
EDIQUIP edit table & rack . . . \$275.00
EDIQUIP film rack \$87.50
MOVIOLA SZF 6-gang sync-block . \$450.00
MOVIOLA SZD 4-gang sync-block w/mag-head \$375.00
HFC 35mm Negative take-up rewind . \$60.00
B&H 8/16mm hot splicer \$255.00
Maier-Hancock hot splicer 8/16 . . \$275.00



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INDUSTRY ACTIVITIES

Dallas' USA Film Festival Expands Spring Schedule

Sam Grogg, the new Executive Director of the Dallas-based USA Film Festival, has announced a greatly expanded schedule of events for the Festival's upcoming spring season. According to Grogg, this expansion of the Twelfth Annual USA Film Festival from a single ten-day event to a series of events spread out over a three-month period is just the beginning of his plans to create a year-round schedule of Festival programs.

A ten-day series of feature film presentations will begin on April 30 and run through May 9. This will include a three-day Great Actor Retrospective (April 30—May 2); Premiere Week, a critics' choice showcase of the best new films available (May 3—May 7); and a Great Director Retrospective (May 8—May 9).

"I feel this more diverse approach to programming," concluded Grogg, "will give the Festival a greater opportunity to serve both the Dallas film community and the industry at large."

SPSE 35th Annual Conference Planned for May 9—14, 1982 in Rochester, New York

The 35th Annual Conference of the Society of Photographic Scientists and Engineers will be held at the Genesee Crossroads/Holiday Inn in Rochester, New York on May 9—14, 1982.

According to Fred Guevara, Eastman Kodak Company, the Conference Chairman, the meeting is expected to attract international participation. It will include a wide range of technical session topics of high current interest, including Electrophotography, Remote Sensing, Optical Disc and Chemical Recovery. Also proposed are sessions on Electronic Image Recording, Laser Recording and Business Graphics, among others. Papers Chairman for the conference is Dr. Alfred Marchetti of the Kodak Research Laboratories.

One of the technical sessions, entitled "Chemical and Energy Recovery," will be chaired by J. W. Kleppe of Eastman Kodak's Color Print and Processing Operations. Kleppe reports that this session will feature at least ten papers. Some tentative subjects are Automated Continuous Analysis for Environmental Applications, Re-Use of Developers through Ion Ex-

change Technology, and Wash Water Re-Use Using Ion Exchange.

A student papers session will be chaired by Dr. Ronald Francis of the Rochester Institute of Technology. This type of session is increasingly popular with SPSE Annual Conference participants and has traditionally featured many excellent papers by graduating seniors in the field of Photographic Science and Technology. Papers from RIT, Ryerson Polytechnical Institute (Toronto), St. Cloud State University (Minnesota), and Franklin Institute of Technology (Boston) are anticipated. An enjoyable schedule of evening events is planned for conference participants. On Sunday, the traditional welcoming reception will be held from 6:00 p.m. until 8:00 p.m. On Monday evening, a walking tour of Rochester's cafe district will give visitors an opportunity to sample a variety of beverages and cuisine. On Tuesday evening a gala reception will be held at the George Eastman House, the International Museum of Photography. This event will feature complimentary food, beverages and entertainment for all registrants. Exhibits will be open.

Advanced registration fees for the conference are \$195 for SPSE members and \$235 for non-members (\$40 may be applied to Society Membership). There is an additional charge for registration during the conference. Student members of SPSE may attend the conference without charge. Students who are not members of SPSE will be charged a \$10 registration fee.

For information on the 1982 Conference or on SPSE, its services and activities, write to the Society of Photographic Scientists and Engineers, 7003 Kilworth Lane, Springfield, VA 22151; or telephone (703) 642-9090.

RIT Film and Video Workshops

Three workshops in film and video will be offered by Rochester (N.Y.) Institute of Technology's (RIT's) School of Photographic Arts and Sciences.

Motion Picture Workshop I, from June 7 to July 9, will cover film making as a means of interpretation and expression. Technical and theoretical knowledge will be emphasized through class projects.

From July 12 to August 13, the school will offer both Motion Picture Workshop II and Television Production Workshop.

Motion Picture Workshop II will empha-

size the completion of a short sound film. Television Production Workshop includes sessions on script writing, pre-production planning, camera and crew, directing, electronic editing, ENG procedures and producing television visuals. Course emphasis will be on non-commercial television utilization.

For further information about these workshops and for a summer catalog, please contact: Rochester Institute of Technology, Coordinator of Summer Sessions, College of Continuing Education, 50 West Main Street, Rochester, New York 14614.

Fuji Wins Academy Award For A250 Low-light Film

Fuji Photo Film Company, LTD. has won an Academy Award for its new A250 Ultra-high speed color negative movie film.

The announcement that Fuji had taken the top award in the Scientific and Technical Achievements category has been made by the Academy of Motion Picture Arts & Sciences, which stated, "The Fuji achievement . . . is a significant step forward in providing the cinematographer and director with the means of achieving new levels of artistic, technical and economic advantages. This scientific accomplishment . . . is a definite influence upon the advancement of motion picture production."

Fuji's A250 film has been used by top cinematographers in hundreds of feature films and television programs throughout the world, including such U.S. productions as: SHARKY'S MACHINE; VICE SQUAD; AN EYE FOR AN EYE; MISSING; STAR TREK II; FANTASY ISLAND; and GREASE II.

\$26 Million Film and TV Center To Be Built In Jamaica

Plans to establish a major motion picture and television center in Montego Bay, Jamaica were announced by the Rt. Hon. Edward P. G. Seaga, P.C., Prime Minister of Jamaica.

Groundbreaking for the Caribbean Media Center is scheduled for mid-1982 and the facilities are expected to be ready for use by next year. It will be designed by Ecodesign/SPC International, Cambridge, Mass., in association with British Films, Limited, London, England.

we're on track

Let's face it. Today's production is calling for more and more location work. Whether you're shooting features or documentaries, in film or video . . . you need a versatile camera support.

The Elemack Cricket is the perfect solution.

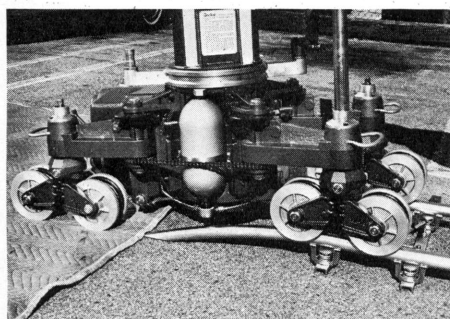
This compact, lightweight dolly can go anywhere and do anything! Not only is it great in the studio, but put it on location to see what it can really do!

TRACK for mobility

Even the simplest location set-ups can be enhanced by camera mobility. We've got the perfect solution. Elemack has devised an ingenious new track system that simplifies set-up. Say good-bye to laying plywood sheets. This track is smooth and quiet and easy to assemble.

TRACK for versatility

Elemack designed this track to take advantage of the Cricket's multiple leg configurations, and the NEW articulating tracking wheels. It comes in modular sections of both straight and curved track.



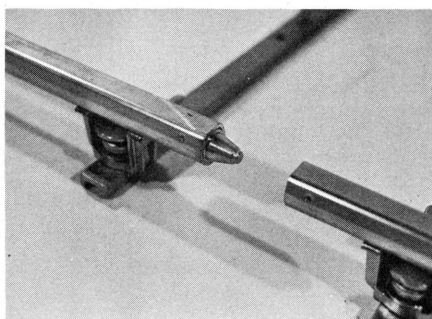
Specially designed ramp for effortless loading of the Cricket dolly onto the Elemack track.

TRACK for ease and strength

The patented flat top design allows constant track wheel alignment even on curves, thereby minimizing the energy necessary to get the dolly going and keep it going. The 18° pitch of the track side walls assures proper wheel registration, eliminating "wobble." The steel construction of the track tubing weighs no more than aluminum track of equal strength. Most important, the design allows for maximum stress without deflection.

It's What's On Top That Counts

Even off the track the Cricket dolly is without parallel. It can go through a doorway as narrow as 16"! It has a precision machined pneumatic/hydraulic power boom for the ultimate in smooth operation. Seating for both the camera operator and assistant. And with the addition of accessories such as the Low-Shot bracket and Jib Arm it takes on most of the features of a small crane.



Patented designed flat top track, fast and easy to set up.



Next time you head for a tough location shoot pick up a Cricket dolly, shove it in the back of your station wagon and go! We're on track, so you be on track!



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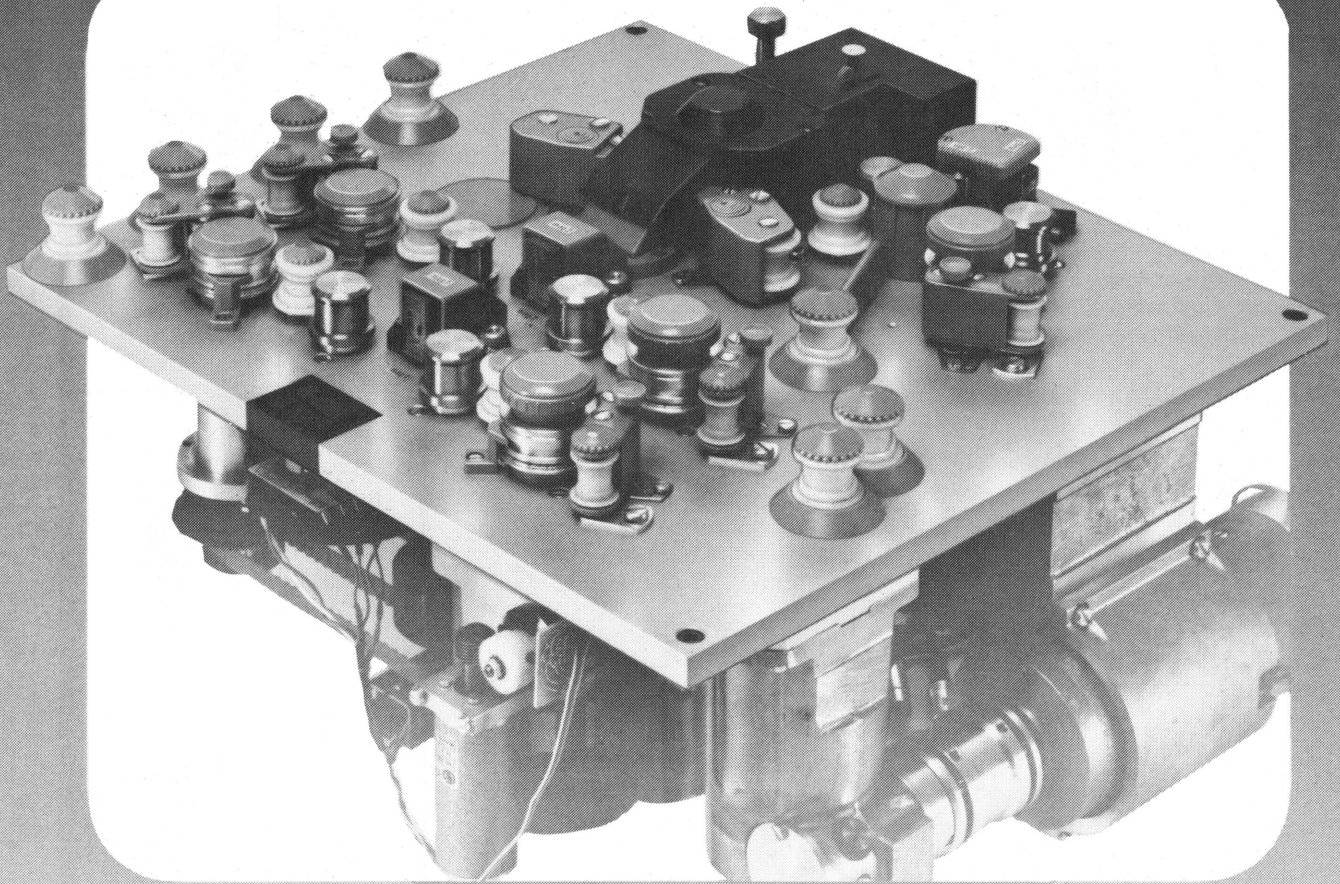
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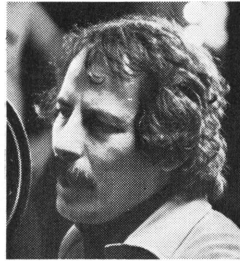
If you process your film with Chem-Tone, you're in good company.

"I've used TVC successfully for several years. I know I can depend on the people there. They care about my film."



Fred Levinson

Fred Levinson and Company

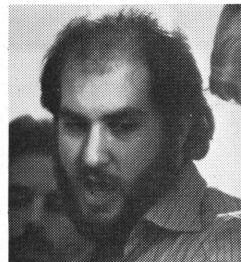


"Wherever I'm shooting, I feel as though TVC is right there. I like their work and I like their attitude."

Lou La Rose

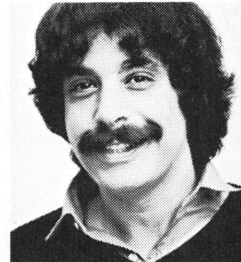
Director/Cinematographer, La Rose Production, Ltd.

"100% of 'Maniac' was Chem-Toned. That saved us a ton of money."



Bill Lustig

Director/Producer "Maniac"



"You could say that the Chem-Tone process was absolutely essential to this film."

Ira Wohl

Director "Best Boy"

"At TVC the quality control is beyond reproach."



Jimmy Collins

*Director/Cinematographer/Jayan Film Productions
Atlanta*



"In an industry noted for its variables, one thing never changes. TVC's consistent excellence."

Leo Lebowitz

Director/Cinematographer

Only **tvc** has Chem-Tone

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Tough Rolux

How to use Rosco's Tough Rolux
for a little diffusion. Or a lot of diffusion.
Or a spot of diffusion.
Or anything in between.

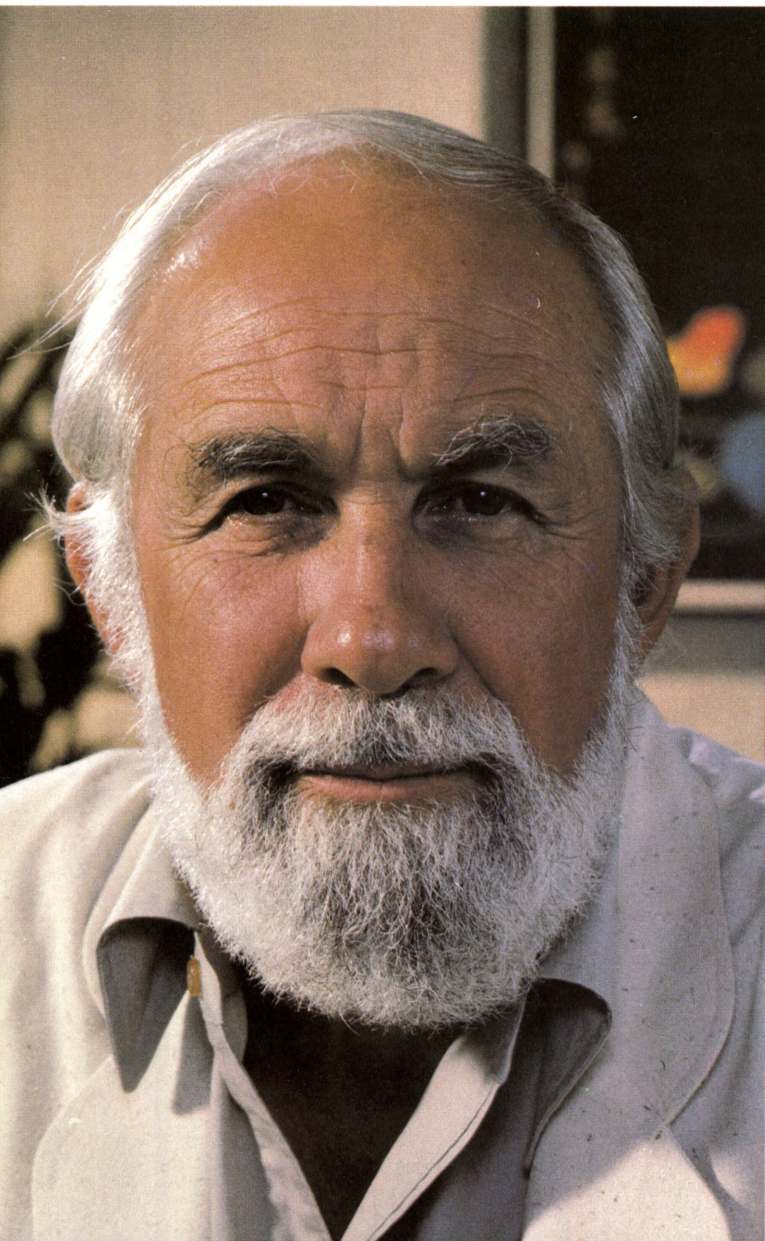
There's no limit to the texture of lighting you can achieve when you keep rolls of Rosco's Tough Rolux on your set.

William Fraker, who directed and then posed for the pictures below, suggests four techniques for Tough Rolux diffusion... all geared to getting the desired effect in a particular situation.

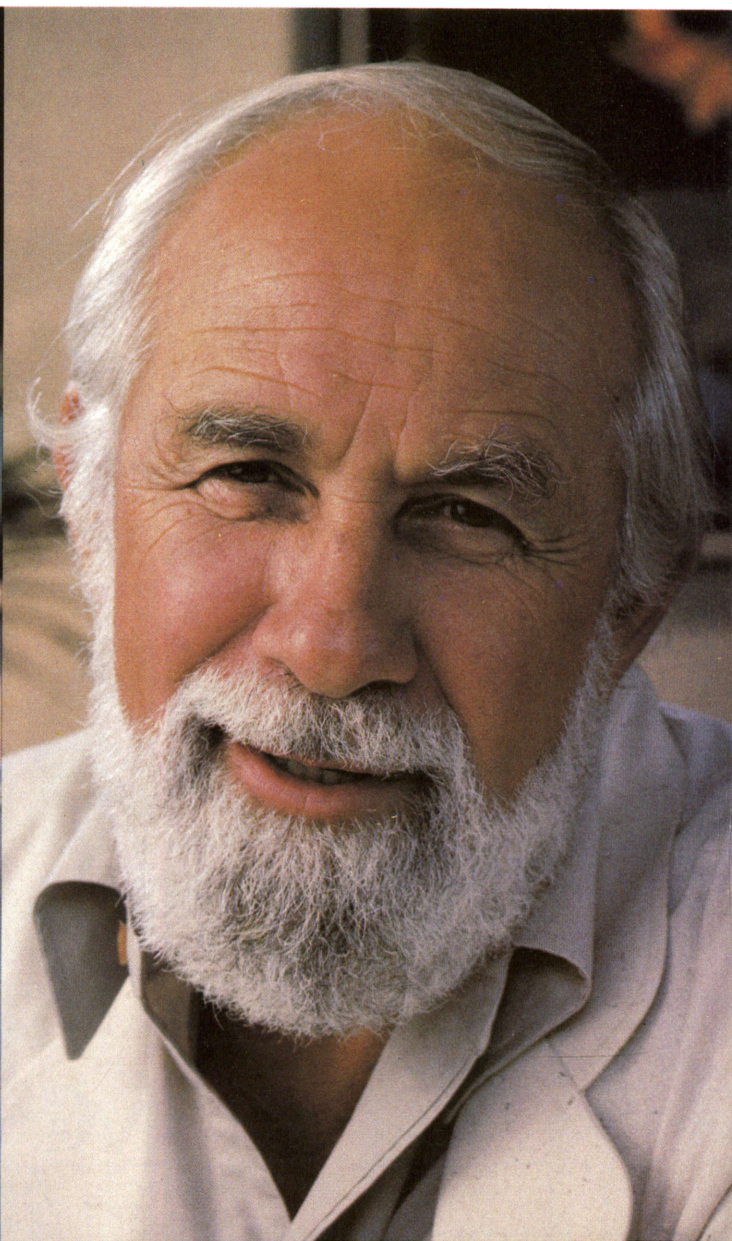
Rosco calls the material Tough Rolux because it's tough enough to stand up to hot lights. Each roll of Tough Rolux yields 100 square feet of material. It can be used in the gel frame of a light fixture, or rolled out in large sheets in front of a bank of lights. Fraker, and other filmmakers, have used it as a tent, shredded it, cut holes in it—and even used it as a white reflective surface for bouncing light.

As versatile as it is, Tough Rolux is only one of 16 useful Rosco diffusion

Shredded Rolux



Framed Rolux



materials. You'll find them all at your rental house or Rosco dealer.

Fraker on diffusion

Rosco asked Bill Fraker to demonstrate in print four techniques for diffusing light with Tough Rolux. He lit the scene with four HMI fresnel units in flood position. Because he prefers a mixture of hard and soft light, Fraker left one hard light without diffusion throughout all the photos. It was positioned behind his right ear.

Shredded Rolux

Because Tough Rolux handles heat so well, it can be used directly on the luminaire. In the first picture below, 3" vertical slashes were cut in the Rolux and inserted into the color frame of the key light. This technique helps bring out the texture of skin tones, adding life and character to them.

Framed Rolux

Tough Rolux was clipped into a 4 ft. square grip frame and positioned 5 ft. in front of the key light which was opened to full flood.

Tented Rolux

For overall soft light, nothing has quite the effect of building a tent with Tough Rolux. The individual light sources (three used here for soft front lighting) virtually disappear and the full "tent" becomes the effective source.

Slit Rolux

For a dramatic highlight, Fraker had a slit cut into Tough Rolux so the hard light punched through to provide an arresting accent.

About Bill Fraker

William A. Fraker, ASC, has just completed directing "The Legend Of The

Lone Ranger." A four-time Academy Award nominee, he photographed such films as "Heaven Can Wait", "Looking For Mr. Goodbar", "Rosemary's Baby", and "1941". He is president of the American Society of Cinematographers and a member of the Board of Governors of the Academy of Motion Picture Arts and Sciences and the Executive Board of IATSE Local 659.

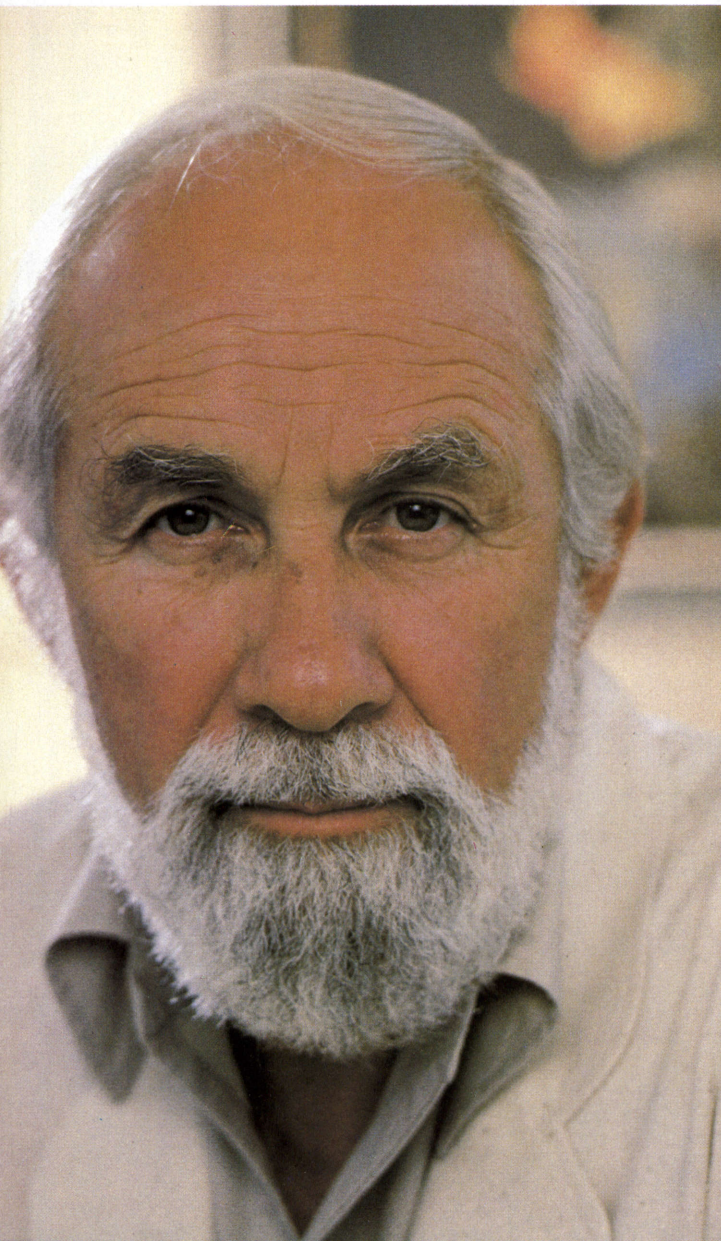
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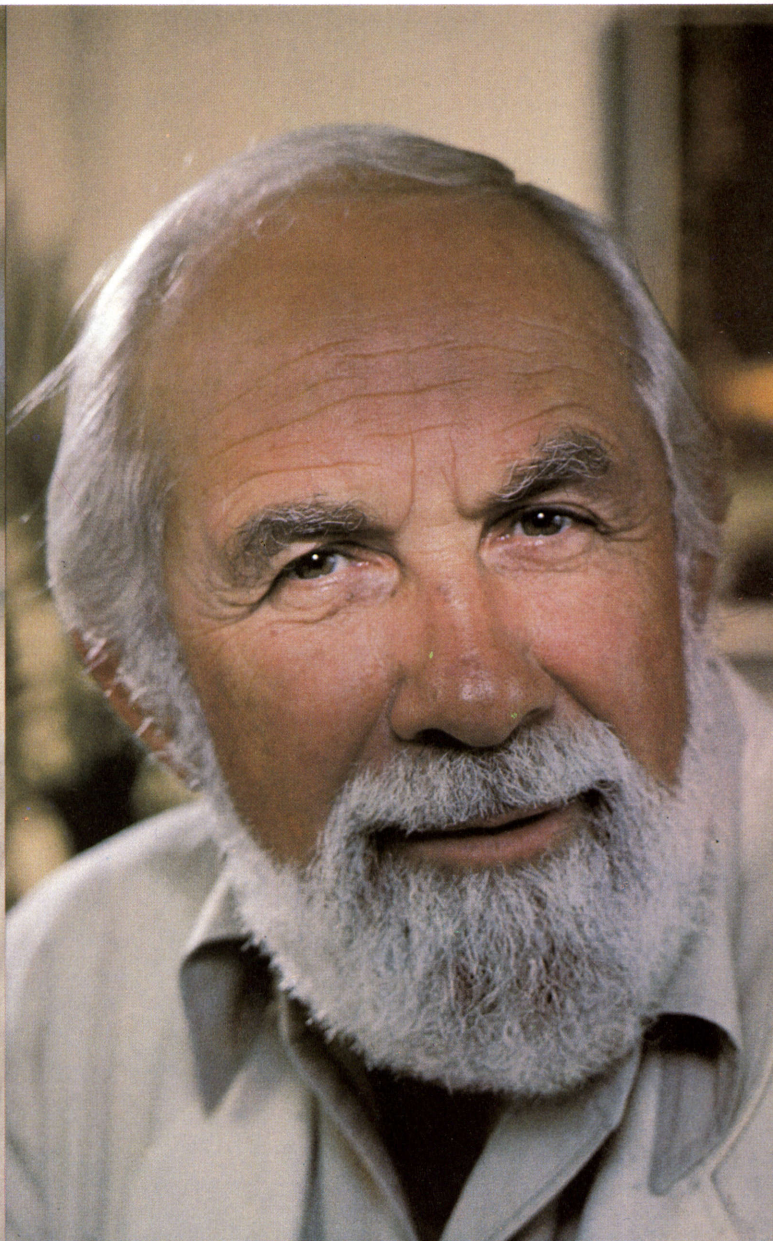
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69/71 Upper Ground, London SE 1 9 PQ England
01-633-9220 Telex: 8953352

Tented Rolux



Slit Rolux



TALKING TECHNICALLY

By DAVID W. SAMUELSON

HELICOPTER FILMING II

The ideal way to film or shoot TV from a helicopter and take pictures free of vibration is to mount the camera on a proper helicopter mount in perfect balance, aim it at the subject initially AND THEN LEAVE IT ALONE. Any touch contact between the cameraperson and the mount can only transmit unsteadiness.

Of course it is necessary for the cameraperson to guide the camera in the right direction occasionally and this should be done with the lightest fingertip control, giving into the mount whenever it fights back. If it were possible to aim the mount by blowing on it this would be perfection.

All of this presupposes that the camera is precisely mounted in balance on a proper helicopter mount.

Helicopter camera mounts, such as the Tyler, counterbalance the camera against a heavy weight which has inertia. They work rather like a tightrope walker's pole, the bigger, heavier, longer and lower it is the more he has to grab hold of which will not be subject to small sharp movements.

Setting the camera on a Tyler mount in the first place is all important and can make the difference between good and indifferent pictures. We always recommend to clients who are going to the expense of chartering and positioning a helicopter, employing a cameraperson, renting and transporting a camera and helicopter camera mount and shooting, processing and printing film stock, that they should also take along a technician who is really expert at balancing the camera on the mount in the first place.

The importance of this aspect of vibration free helicopter filming, especially if long focal length lenses are to be used, cannot be overstressed.

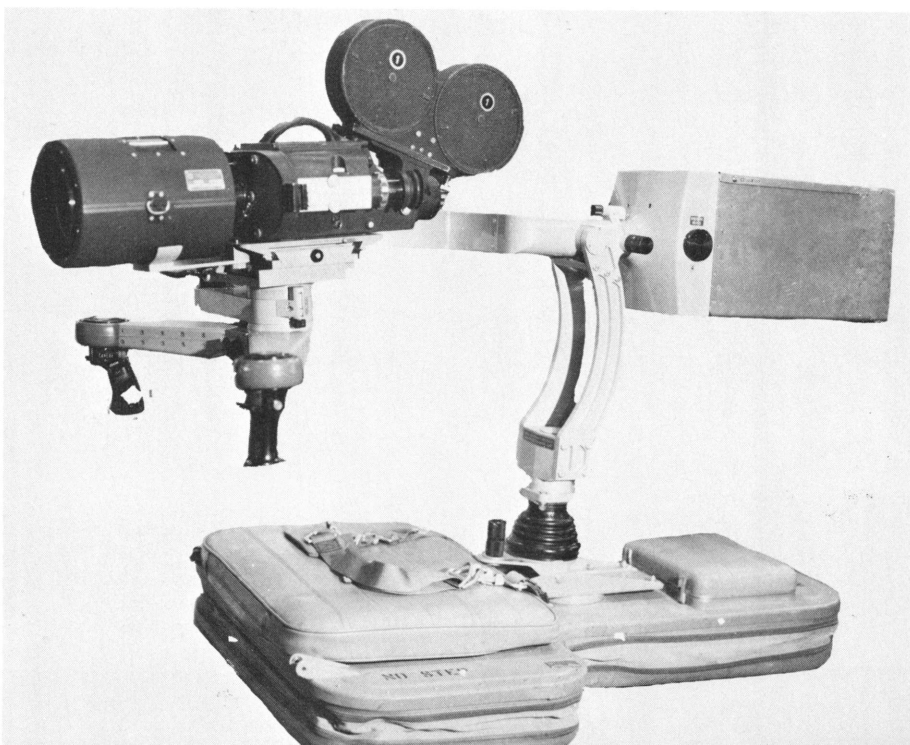
The Tyler mount has two points of balance, one behind the cameraman which counterbalances the camera and the camera mounting against a very heavy mass and which permits the camera to be raised and lowered relative to the cameraman's eye, and the other about the centre of gravity of the camera itself.

With the cameraperson strapped securely in position for obvious safety reasons the amount by which his/her head and shoulders can be raised or lowered or generally maneuvered to suit the camera eyepiece is necessarily very limited. The rear gimbal mounting makes it unnecessary to crouch to see through the camera

Continued on Page 362



The author filming a helicopter shot. (BELOW) The Tyler Camera Mount. Helicopter camera mounts such as this counterbalance the camera against a heavy weight which has inertia. Setting the camera on the Tyler Mount is all-important and can make the difference between good and indifferent pictures. A technician who is really an expert at it should do this.





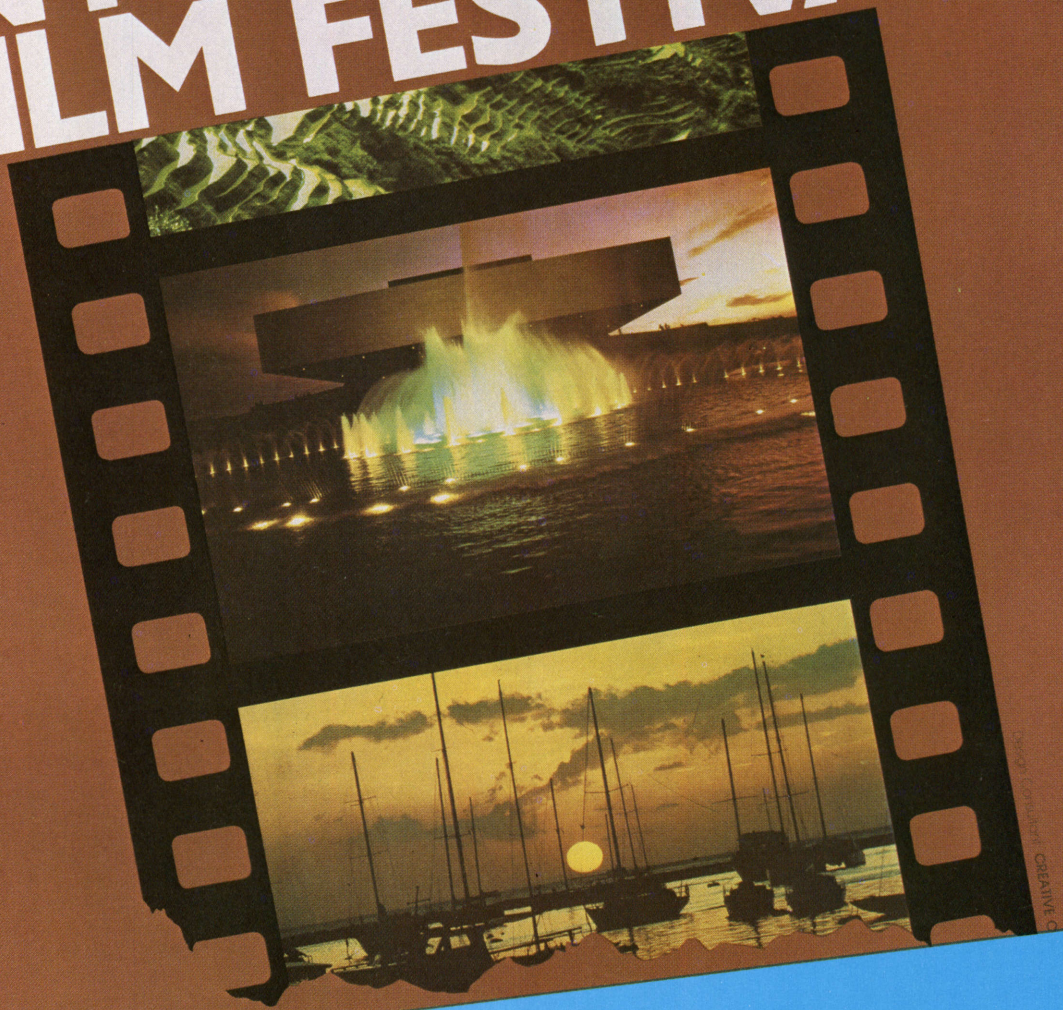
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MANILA INTERNATIONAL FILM FESTIVAL '82



By HERB A. LIGHTMAN

MANILA, Philippine Islands

As the 747 wings its way through the night, across the Pacific non-stop to Tokyo, then on to Manila, George Hamilton sits across the aisle from me making funny quips. Next to him is Barbara Carrera looking sultry—she can't help it. In a seat up front is George's mother looking mysterious in a Roaring Twenties movie star sort of way. Sharing the cabin are several important looking people whom I don't recognize, but it's obvious from the chit-chat that wafts back and forth that

we are all headed for the same destination: the First Manila International Film Festival.

There is a delay in leaving Tokyo, so we are a couple of hours late in reaching Manila. Not to worry. In a special VIP lounge, an oasis of warmth after the long night, there waits a staff of cheerful, courteous and efficient young men and women who slip us imperceptibly through Immigration, take our baggage checks and conduct us to our transportation. It is all done smoothly and rapidly.

In its first time out, this spectacular "Fiesta of Film", the only event of its kind in Asia, sets a standard for the rest to follow

There are no delays, no red tape, no interminable waiting in drafty halls, no bumbling little Napoleons drunk with power and rubber stamps. It's smooth as silk all the way.

The next time I see my luggage it is in my suite at the Manila Hotel.

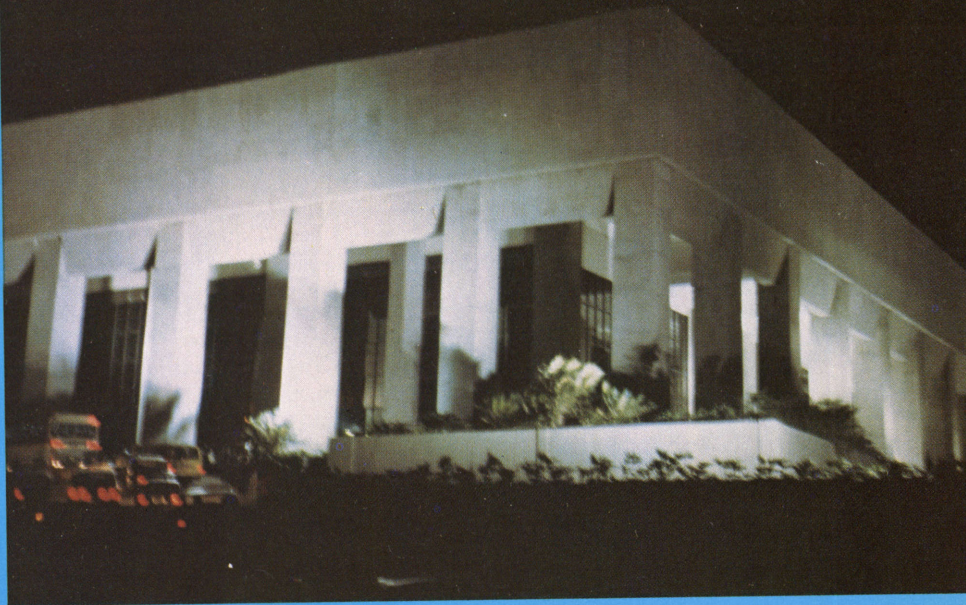
THE START OF SOMETHING BIG

In the morning there is more of the same at the Festival Press Center which is located on the first floor of the vast Philippine International Convention

Center, one of several futuristic buildings of the Cultural Center of the Philippines Complex built on reclaimed land that juts out into Manila Bay.

Not being a true Press person, but rather a displaced filmmaker dragged into an area of journalism, I have little patience for the accreditation rigamarole one typically must endure at film festivals. But there is none of that red tape here. Identification photographs are taken, credentials are issued, press kits are made available, schedules are provided—all with a high degree of efficiency mellowed with friendliness, warmth and courtesy.

An excellent briefing of things to come is published in the first issue of the Manila Film International, official daily news tabloid of the festival, published by Bill and Asia Ireton. Excerpts from that briefing read as follows:



Completed just barely in time for Opening Night of MIFF '82, the sumptuous new Film Center glows like a jewel. (BELOW) This whimsical sketch of the Cultural Center of the Philippines Complex nevertheless conveys some idea of the incomparable facilities made available for screenings and the many other events of the Festival. (Photographs by Sonny Camarillo and the author.)





A towering elaborate cake was the centerpiece of a reception following the Opening Ceremony of the Festival, attended by a VIP invited audience.

An estimated 1500 delegates are expected to visit Manila for its international film festival, a project spearheaded and conceived by Mrs. Imelda Romualdez Marcos, the First Lady of the Philippines. The event is the first in Asia to hold simultaneously a film competition, market, exhibition and symposia. Dated Jan. 18-29, the IFFPA-recognized MIFF is planned as an annual event.

All festival activities will be staged at the Cultural Center Complex with the entire 65,000 sq.m. area of the Philippine International Convention Center utilized for the festival, market, symposia, secretariat and press/information center. The newly constructed Manila Film Center will house the competition.

Opening on Jan. 18 with the People's Republic of China's *The Plum Flower Embroidery*, competitive entries vying for the MIFF "Golden Eagle" awards for best film, director, actor and actress will be *Liten Ida* (Norway), *There Was A War When I Was A Child* (Japan), *Funcion de Noche* (Spain), *En Septiembre* (Spain), *Cream, Soda And Milk* (Hong Kong), *Fantasma d'amore* (Italy), *The Beloved Woman Of Mechanic Gavrillov* (USSR), *Jacks-Of-All-Trades* (Yugoslavia), *36 Chowringhee Lane* (India), *The Woman Next Door* (France), *Smith Palace* (New Zealand), *Harry Trace Desperado* (Canada), *Take It All* (West Germany), *Lola* (West Germany), *Gallipoli* (Australia), *No Charges Filed* (Egypt), *The French Lieutenant's Woman* (UK), *Wasted Lives* (Hungary), *Body Heat* (USA) and *Fridays Of Eternity* (Argentina).

Awards for best cinematography, screenplay and editing may or may not be given depending on the decision of the international jury, which consists of Manuel de Leon, Zsolt Kézdi-Kovács, Luis Gasca, Krzysztof Zanussi, David Robinson, Delbert Mann, Michael Levy, Kashiko Kawakita, King Hu, Satyajit Ray, Kirill Relogov Emiliavitch and Gillo Pontecorvo.

There are 179 titles from 39 countries in Western Europe, Central America, South America, North America, Australia, Scandinavia and Asia which will be screened during the MIFF, aside from the market. Elaborated Litton, "The movies will be screened night and day in three theatres—the Plenary Hall and Meeting Room 1 of the PICC plus the Main Theatre of the Manila Film Center—at 8:30 a.m., 11:00 a.m., 2:00 p.m., 4:30 p.m., 7:30 p.m. and 10:00 p.m. Over 35 features to be presented in the evenings will have the stars, directors or producers in the theatre lobbies to welcome audiences.

Besides the competition, entries have been grouped into four categories—out-of-competition, retrospective, focus on Asia and exhibition. The hors concours/special premieres division will screen such titles as *Samurai Reincarnation* (Japan), *From A Far Country* (Poland), *The Moment* (Denmark), *The Nest* (Spain), *Starting From Three* (Italy), *Trace* (Turkey), *Heartaches* (Canada), *The Grass Is Singing* (Sweden), *Mystique* (USA), *Mommie Dearest* (USA), *Lill Marleen* (West Germany), *Chance Awakening* (France), *Angkor* (Thailand) and *Four Friends* (USA).

Meeting room 12 at the PICC will be the venue for afternoon (2:00-4:00 p.m.) symposia on film acting, production, musical scoring/scenic design, cinematography/still photography, distribution, marketing and directing with speakers including Sherry Lansing, Roger Corman, Herb Lightman, David Maitlon, Myron Karlin, Leslie Asleusse, Fred Hift, John Frankenheimer, King Ilu and Peter Ustinov.

Films for information and exhibition consist of a Chaplin retrospective, Films on Asia, Hungarian retrospective and Filipino product. Chaplin titles include *Woman Of Paris*, *Gold Rush* and *The Great Dictator*.

The film market is also a primary feature of MIFF 82 with the presentation of roughly 300 pictures. Litton pointed out: "The market aims to develop Asia's 2.5 billion population as an audience for films. It will also create new outlets for Asian films in the West as well as give western film traders a first-hand feel for the demand throughout Asia."

Socials and cultural are also very much the order of the day at the MIFF. Cultural events at the Film Center Plaza consist of a Barrio Festival (folk dances), Brass Band & Sunshine, Canso Festival, Madrigal Singers, Legend of the Earl Manok, Concert at the Park, Modern Dances, Indonesian Cultural Troupe, Pop Concert, Dragon Dance and Ati-Atihan Fireworks.

THE CURTAIN RISES

Opening night of the Manila International Film Festival is, as expected, a gala affair. But it also marks the accomplishment of a kind of miracle: the completion just in the nick of time of the sumptuous Film Center, site of the Opening and Closing ceremonies, plus continuous screenings of the festival films.

Built at a reported cost of \$25 million, the handsome structure (which is a kind of modernized version of the Parthenon)

required the efforts of 7,000 workers toiling around the clock for 170 days to make it ready for opening night. Despite a horrendous accident (the roof of the six-story structure caved in during construction, injuring and killing scores of workmen), it is ready on schedule.

Completely floodlighted, and with illuminated fountains splashing in front of it, the Film Center glows like a gem, as hundreds of limousines, private cars and taxis pull up to the front facade. In the Film Center Plaza adjacent to the main structure, a spectacular outdoor entertainment featuring folk dancer and singers is in progress.

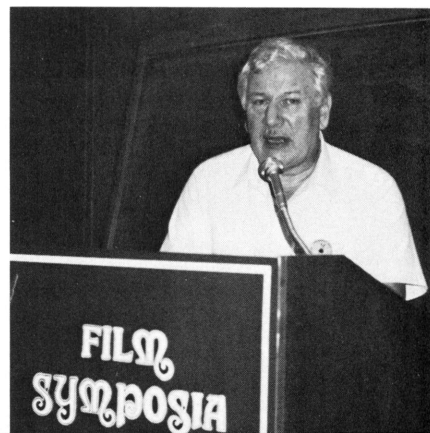
The stairway leading to the main entrance is flanked by rows of gorgeous young *Filipina* beauties who, in their colorful gowns, look like living flowers. Inside the foyer the glittering crowd of formally attired guests assembles beneath an equally glittering crystal chandelier. The ladies are strictly high fashion. The men are attired in the filmy, ornately embroidered shirts (called *barong Tagalog*) which constitute formal wear for gentlemen in the Philippines. Toggled out in my conventional dinner jacket, I cannot but observe what a sensible (and attractive) garment the *barong* is for a warm climate.

The program begins and the First Lady, Mrs. Imelda Romualdez Marcos, welcomes delegates and officially opens the Manila International Film Festival 82. In her remarks, she states: "Let us inaugurate a new era in human culture... Welcome, then, to the celebration of that human spirit in all of us—the spirit of creation."

In his opening remarks, Festival Director-general John Litton says, "It is with great delight that I welcome you tonight to what promises to be the most important event in the history of Asian cinema—the first Manila International Film Festival."

Continued on Page 372

Academy Award-winning actor Peter Ustinov convulsed the audience with his pungent wit during the course of his symposium on the art of acting.



MOTION PICTURE PRODUCTION CONSIDERATIONS IN THE 80s

By ROGER CORMAN

As the cost of filmmaking soars, it becomes more and more expedient for producers from different countries to combine their resources

(EDITOR'S NOTE: What follows has been excerpted from the remarks of producer/director Roger Corman made during the symposium which he conducted at the Manila International Film Festival on the subject of "Motion Picture Production Considerations in the 80s." In terms of sheer numbers Mr. Corman might be regarded as the most successful of all American producers, since he has produced more than 200 films, only a very few of which proved unprofitable. He is also noted for having given many famous filmmakers their first chance as neophytes. Since Mr. Corman has effected several successful co-productions in the Philippines, and since his audience was composed largely of local filmmakers keenly interested in possible co-productions with foreign producers, his talk was heavily slanted in that direction.)

For me, production starts right at the beginning. It is part of the creative proc-

ess. For any method of motion picture production to be efficient, the aspects of the physical producing must be integrally tied into the financing, the screenwriting, the casting, and all of the other aspects of the making of the film.

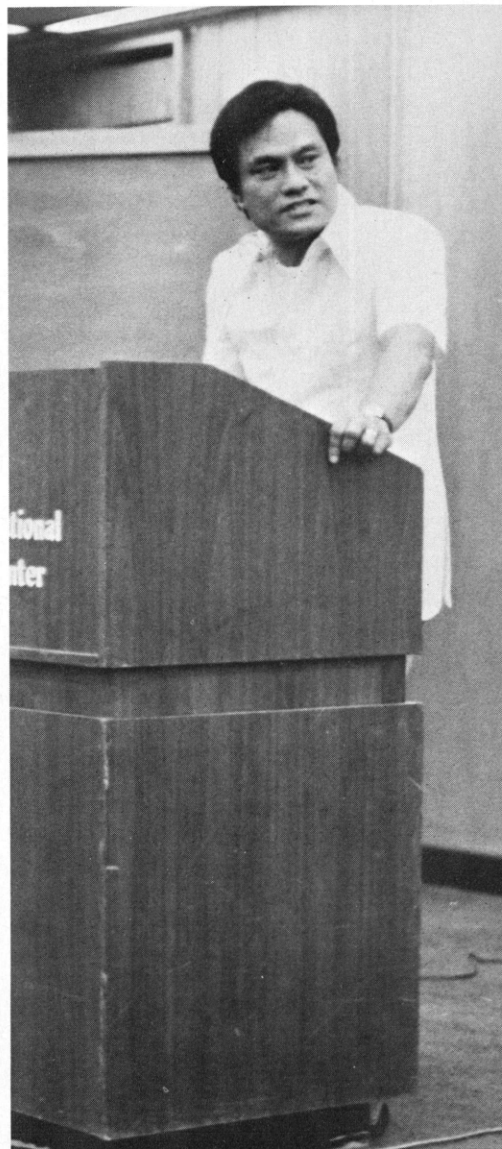
One of the things I've seen go wrong on a number of films occurs when the producer has a certain set amount of financing available and then, while he is working with the writer and the director, concepts come up that from the beginning could never have been done on that budget. This has given rise to a number of famous pictures over the last couple of years where, logically, the producer or production manager going in knew that the film could not be made for the agreed-upon budget. But the film was started anyway, with the kind of vague hope or faith that a

miracle would take place. Sometimes a miracle *does* take place during shooting, but not very often.

I'm a strong, strong believer in pre-production planning. If there's anything I can contribute to your work based upon mine, it is that the most important aspect in making a film takes place before the camera rolls. The producer and the director must see eye-to-eye. This is essential. They must know the type of film they are going to make. They must be in agreement as to just how it is to be made, what the themes are, what the concepts are, even going so far as to know what the shooting style is. Such understandings are crucial for the producer and the director, whom I consider to be the most important people connected with the production

Continued on Page 413

(LEFT) Conducting his symposium at the Manila International Film Festival, American producer/director Roger Corman stresses the importance of pre-production planning and his belief that the most important aspect of making a film takes place before the camera rolls. His own very impressive track record bears witness to this theory. (RIGHT) Filipino producer Cirio Santiago, with whom Corman has engaged in several co-productions.



CINEMA WORKSHOP

Continued from Page 320

One of the desirable features of film is its gradual gamma curves. Film does not abruptly lose detail at the extremes of exposure. The gamma of film rolls off at either end, compressing the extremities of exposure. The result is a pleasing visual transition from the linear portion of exposure into the regions of under or over-exposure. Much detail can still be discerned within shadows and highlights. Video, on the other hand, tends to go abruptly black in the shadows. Even more disconcerting is the tendency of video to "burn-out" or "white-clip" in areas that exceed maximum allowable illumination. The EC-35 incorporates special technology that produces gamma curves that more closely simulate film. In addition, the set-up box allows push-button selection of three different gamma correction curves. These can be used to facilitate a particular look or to compensate for high-key or low-key lighting problems. These gamma options can effectively stretch the shadow areas or conversely stretch the brighter areas of the scene. By proper manipulation of these gamma options plus the normal master pedestal control (similar to flashing), the cinematographer can surely create a pleasing "film look" to the shadows and darker areas of the image.

The opposite end of the exposure clas-

sically poses the biggest problems for the electronic camera. If any area of the scene goes much above 2-3f stops over medium gray, the conventional video camera will abruptly "white-clip" the signal, which appears as a burned-out white homogeneous blob on the screen. Moreover, if the camera is moved, this white blob will "comet tail" or "tear" as it moves across the screen. The KC-35 combats these anomalies two ways. First, it incorporates a knee compression circuit that can compress a signal that is 600% over the rated level down to the 100% level. This further modifies the gamma curve to react more like film. Thus, highlighted areas that may have "burned out," are now brought down or compressed into a region where they can be recorded with detail.

Comet-tailing, as well as severe blooming, occur when an overexposed area is not fully "erased" by the electron beam after each frame of the image has been captured. If the overexposed area is stationary, blooming can result, as the effects of incomplete "erasure" become cumulative after each successive frame. If the overexposed area is moving, comet-tailing results, as the image now includes not only the overexposed area, but the ghost of its previous position. The EC-35, like most modern broadcast quality cameras, employs an automatic beam control cir-

cuit that senses an overexposure situation, calculates the extent of overexposure, and increases the strength of the electron beam in that area to assure complete "erasure" of the image. While most beam control circuits can handle two to three stops of overexposure, the EC-35 incorporates a new dynamic beam stretch circuit (DBS) that can stabilize highlight signals as much as four stops in excess of normal peak video level. This DBS, together with the knee compression circuit, creates for the cinematographer a more natural "film-like" rendition of highlights.

All these unique features, as well as a new color masking circuit, make the EC-35 a camera uniquely suitable to cinematographers and the film industry in general. Not only does it deliver an image of exceptional quality, but it comes uniquely closer to "film-like" rendering of a scene. In my opinion, however, these facts do not make the EC-35 an "Electronic Cinematography" camera. What these facts do make the EC-35 is a damn good video camera; the next generation video camera. These new EC-35 features would be welcome on any video camera, as they create a superior image, as well as eliminating or minimizing many of the visual anomalies inherent in the video process. What does make the EC-35 an "Electronic Cinematography" camera is its unique and innovative packaging.

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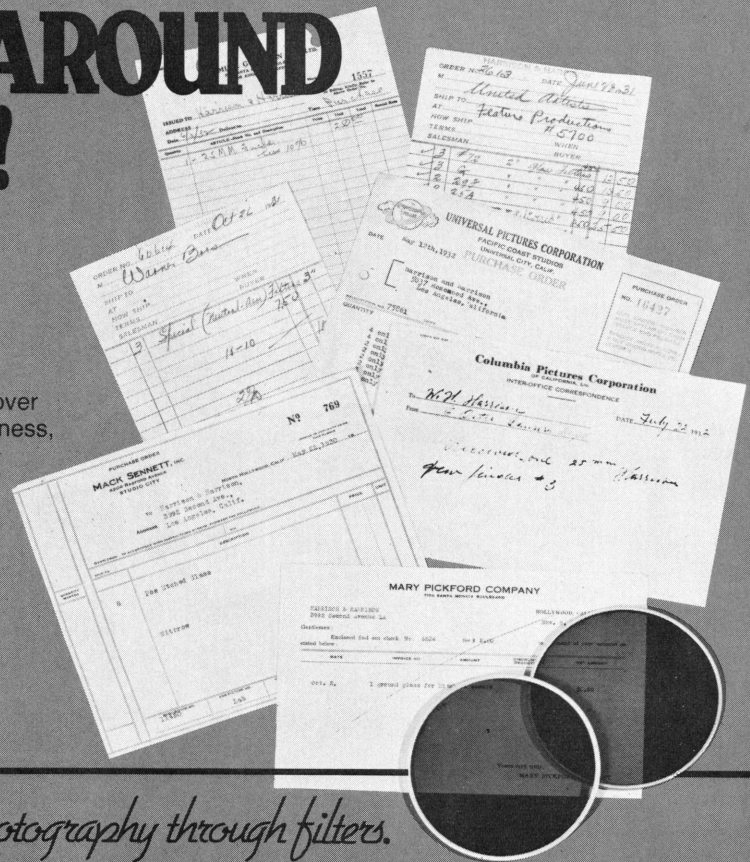
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FILM STYLE PRODUCTION

Originally the EC-35 was conceived to use film-type fixed focal length and zoom lenses. However, the relay optics necessary to facilitate the use of cine lenses would have limited image quality. Ikegami, therefore, commissioned both Canon and Fujinon to create an entire set of high quality fixed focal length and zoom lenses specifically for the EC-35. The Canon set includes five fixed focal length lenses of 6, 10, 15, 24 and 35mm focal lengths, all with a maximum aperture of T 1.5. The set is completed with a 10.5-50mm T 1.6 zoom lens. FIGURE 1 gives the equivalent focal lengths for 35mm cine lenses with similar horizontal angles of view.

LENS EQUIVALENCES

EC-35 Lens 10.5-50mm Zoom	Horizontal Angle 45.5°-10.1°	35mm Lens 24-120mm
6mm	72.5°	15mm
10mm	47.5°	24mm
15mm	32.7°	38mm
24mm	20.8°	55mm
35mm	14.3°	85mm

Figure 1

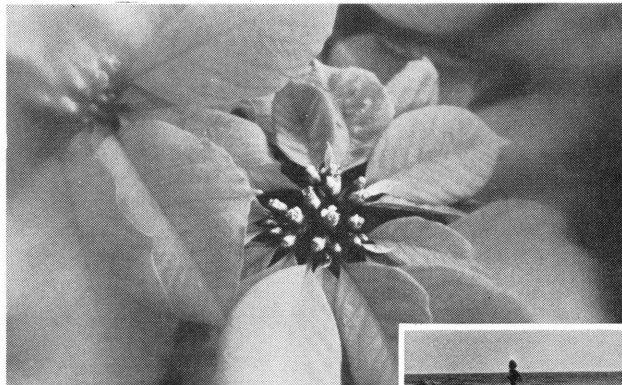
These lenses have been designed to yield optimum performance at maximum aperture, unlike most video lenses which are optimized for medium openings. This will, of course, provide sharp, well-exposed images, even under very low light conditions, but less obvious is the matter of depth-of-field. The format of $\frac{2}{3}$ " video is less than half the size of 35mm film. This means that for a given scene and f-stop, the $\frac{2}{3}$ " video camera will have significantly more depth-of-field. Thus, if a cinematographer wants to achieve a specifically narrow depth-of-field, the $\frac{2}{3}$ " video camera lens would have to be opened more than a full stop, compared to a 35mm film camera recording the identical image. The ability to yield a sharp image at wide apertures can, thus, be more important with a $\frac{2}{3}$ " video camera, and this set of Canon lenses has been optimized for the task. It should also be remembered that $\frac{2}{3}$ " video, like 16mm film, has a decided advantage over 35mm film when a deep focus or extreme depth-of-field is desirable.

The cinematic aspects of the optical system are further enhanced by a choice of two types of follow-focus mechanisms, as well as a motorized joystick zoom control. A professional matte box completes the system. The viewfinder system is another Ikegami achievement. Not only can the viewfinder be attached at four different points on the camera, but it can be oriented a full 360° to accommodate even the most bizarre camera angles.

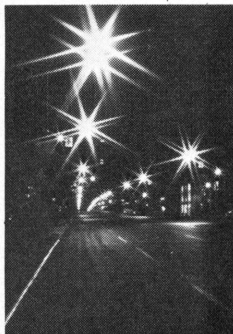
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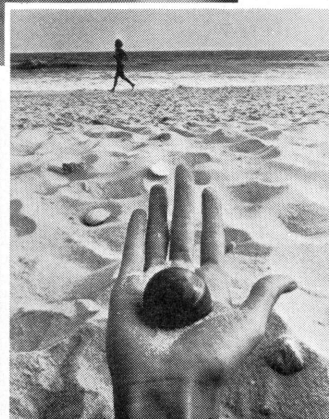
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The 635A – Perfect design from the start

The Electro-Voice 635A is probably the most widely used broadcast microphone currently available. Yet it was introduced back in 1967! There are microphone companies that haven't been around as long as the 635A! What makes a microphone continue to be the broadcasters' favorite after 15 years in the field?

The 635A was designed to be used anywhere. Its screw-machined steel case and mechanically nested parts set standards for durability and ruggedness that the competition still strives for. It was the first omnidirectional microphone designed to have a shaped, rather than flat, frequency response. A rolled off bass response combined with a slightly rising high end make it perfect for vocal reproduction. And it was the first microphone of its type to feature an elastomer

encased head capsule for reduced handling noise and additional protection from severe mechanical shock.

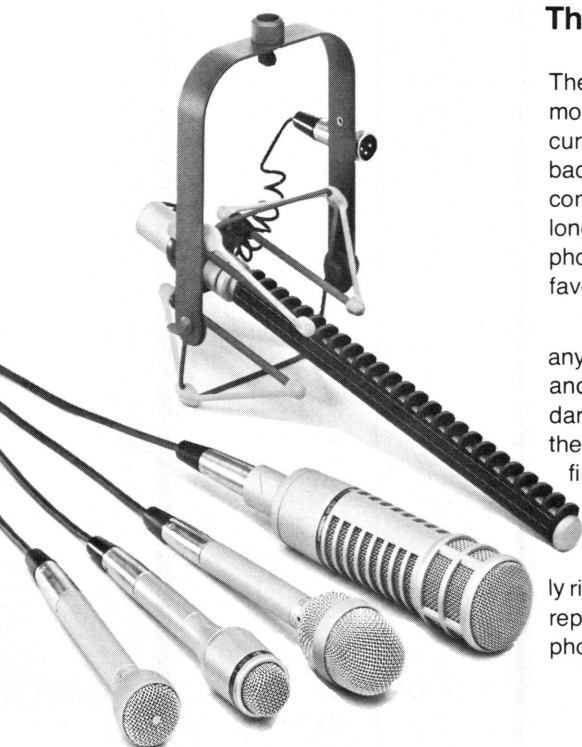
Despite all the technological advances in the broadcast, recording and sound reinforcement industries, the 635A continues to be the "audio man's screwdriver" – a microphone tool that can be used anytime, anywhere, for almost anything. When a product is designed right to start with, there's no need for it to become obsolete. All Electro-Voice professional microphones are designed with the same goal in mind. That's why people think of Electro-Voice as their microphone expert.



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Ikegami EC-35

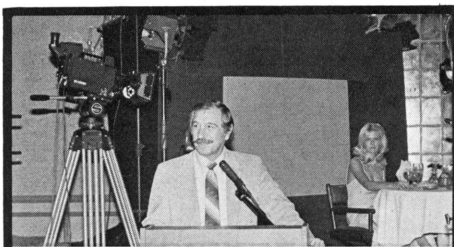
When mounted on the Steadicam, the EC-35 takes its power from the Steadicam and the movable monitor on the Steadicam replaces the camera viewfinder.

The EC-35 was developed by Ikegami in response to a CBS proposal for a video camera capable of replacing 35mm film cameras in television production. It was designed to accept fixed focal length as well as zoom lenses and to permit filtering and follow focus in the same way as a film camera. It contains special electronic circuitry which produces an image more comparable to a film image than that of any other video camera and which permits it to be used under the same lighting conditions as a film camera. It is also highly automated so that it does not require a video technician to adjust it or control it during production.

There is a microprocessor within the camera which can automatically perform the basic set up functions normally done by a video technician. It can be powered by a 12V battery mounted on the rear of the camera, and it is possible to control the videotape recorder from the camera. All of this makes the EC-35 as self-contained as is possible with a high quality video camera. The net result is that only a few hours of orientation are required to enable a two or three man film camera crew to use the EC-35 just as they would a 35mm film camera.

At the same time the EC-35 permits an extraordinary amount of control over the image for the cameraman who chooses to override the pre-set or automatic controls for the camera. There are gamma and sensitivity controls easily accessible on the camera, and the set-up box used for maintenance and fine tuning can be used to tailor the image for a specific look. Moreover the computerized set-up box is designed so that any knowledgeable cameraman can test and fine tune the camera.

See also this month's Cinema Workshop for more about the EC-35.



Ed DiGiulio, president of Cinema Products, introduces the EC-35 at a recent demonstration in Los Angeles. Cinema Products, the West Coast distributor for the EC-35 is currently scheduling hands-on demonstrations for interested cameramen.

I think electronic cinematography has finally come of age. I still think 35mm film is the greatest thing going for most applications, but we recognize that video is an increasingly high quality medium. As technology goes forward, it becomes even more so; and its utility becomes broadened. The EC-35 represents in my view the first truly legitimate camera for electronic cinematography.

Ikegami has created a camera which can simulate the latitude of film. Film has a greater latitude than video in terms of gray scale rendition, but what they've done with the camera is to take the upper levels of brightness and gradually compress them. By taking the knee of the gamma curve and gradually rolling it off so that the last two or three stops of white have a certain amount of contrast difference between them, the EC-35 is able to encompass the same lighting ratios as film.

The camera gets set up in the morning with a computer controlled set up box. Just by putting a chart in front of it, you can have it automatically go through its registration, white balance, gray scale, everything. You then unhook the box, and the microprocessor memory in the camera head retains all of this information for the entire day. You tell the cameraman to go out and shoot—shoot film style. Don't worry about a knob twirler. There's nobody else connected to the camera. It's your baby. You've got a matte box; you've got a follow focus; you've got a J-4 zoom control; and you're on your own. Now for the first time you can really get the film look.

What is the film look? The film look is the creativity that a true cameraman brings to the equipment. It's not the hardware. Maybe now somebody will put a silk stocking over the lens and shoot a whole picture like Ossie Morris did on FIDDLER ON THE ROOF.

Ed DiGiulio
President, Cinema Products

The EC-35 weighs less than 22 pounds and can be easily hand held using the Cinema Products shoulder mount and the hand grip. The hand grip has two switches built into it: a remote stop and start switch for the videotape recorder and a return video switch which causes the viewfinder to display a signal from the recorder instead of the signal directly from the camera. The camera is seen here equipped with a 1.5" electronic viewfinder. A larger "studio" viewfinder is also available from Ikegami, and Cinema Products has designed a 3.7" color monitor for the camera. A second viewfinder can be mounted on the camera for use by an assistant.

In addition to the image the viewfinder has four indicator lights which do such things as flash when the battery voltage drops below a certain level or when the videotape recorder malfunctions. Just above the viewfinder there is a digital display indicating the amount of tape remaining in minutes and seconds, and there are a set of controls for adjusting the image in the finder. One of these controls enlarges the image in the finder and enhances the edges in order to facilitate focusing.

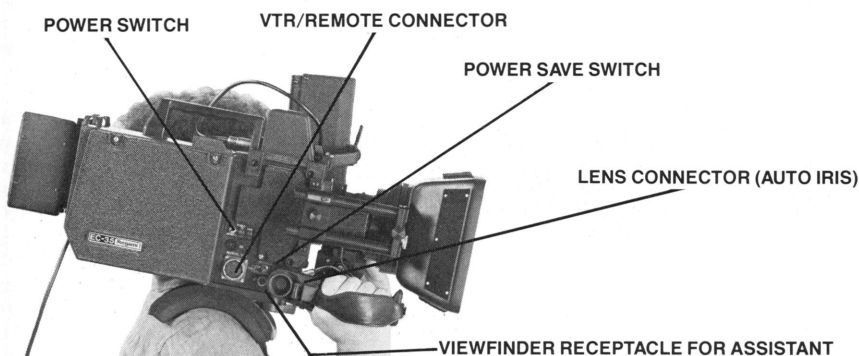
The main power switch for the camera is on the side of the camera away from the operator's head. There is also a power save switch with three positions for shutting off just the recorder or both the recorder and everything in the camera except the heater for the pick-up tubes.

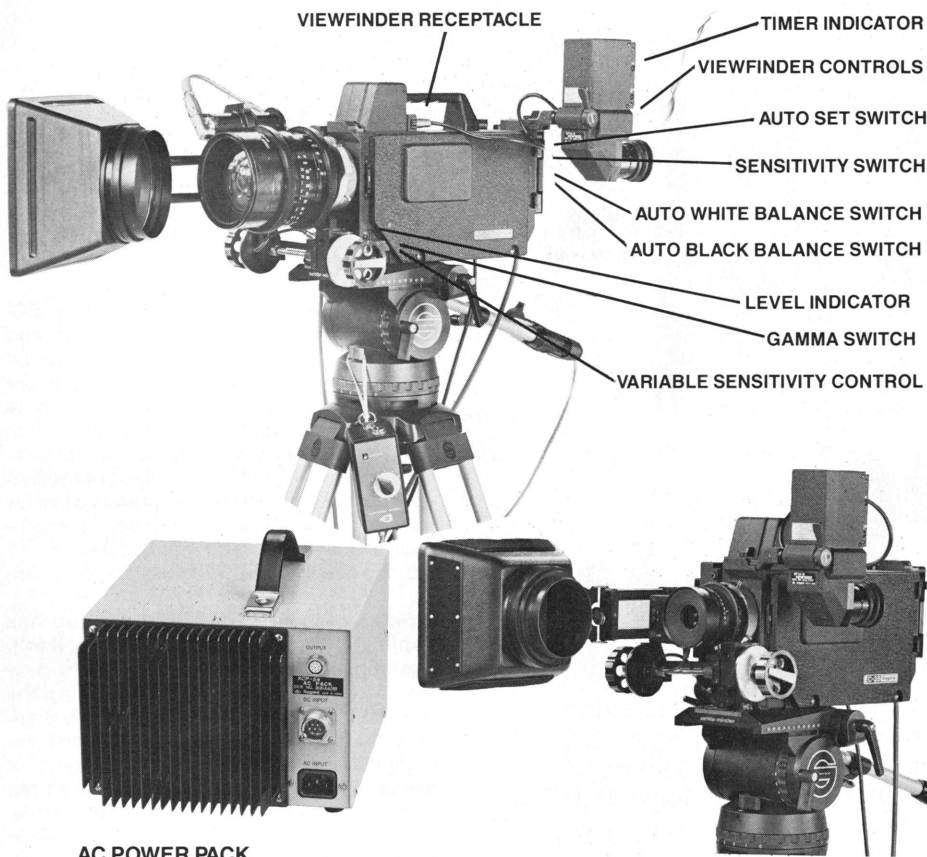
Below the main power switch is a connector for the cable used when the camera is hooked up to the set-up box or when the recorder is to be controlled from the camera. For normal operation only the smaller cable connected to the rear of the camera is required to transmit the video signal directly to the recorder. The switch for starting or stopping the recorder when it is controlled from the camera is located on the rear of the camera below the controls for the intercom system. A headset can be plugged into a jack at the rear of the camera when the larger video cable is used.

The AC power supply is about 8" x 8½" x 10½" and weighs 19 pounds. It will accept AC at 110–117/220–240 volts and 50 or 60 cycles and it will accept DC from 12 to 24 volts.

The follow focus system is a Cinema Products accessory for the EC-35 designed to function exactly like the follow focus on a film camera. It can be operated by the assistant from either side or in the handheld mode by the operator using his left hand. Similarly the Cinema Products matte boxes for the EC-35 are exactly like a matte box on a film camera. The EC-35 is designed to permit the cinematographer to use the full range of filters that he uses with film.

Even though the EC-35 is designed for use in more controlled lighting situations, the lenses for the camera do come equipped for auto iris, and there is a connector on the camera near the hand grip where the iris motor for the lens can be plugged in. Auto iris is simply an automatic exposure control system which is activated by the video signal.



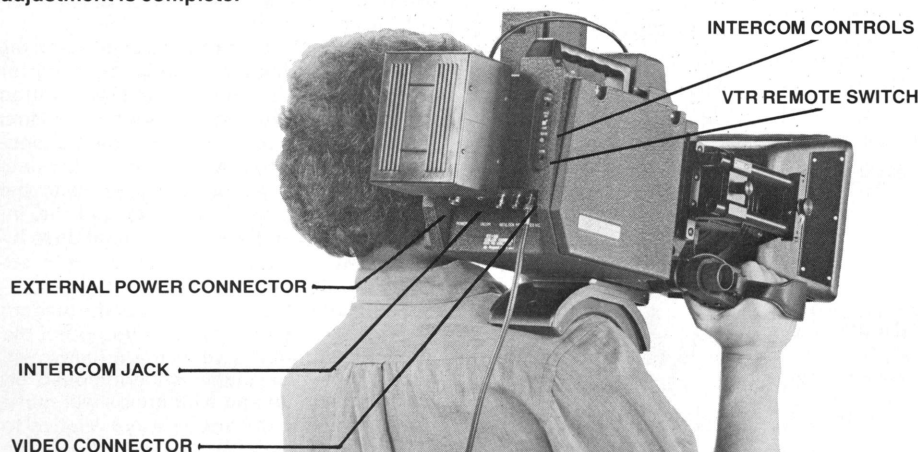


AC POWER PACK

There is a large matte box accommodating 138mm round filters for use with the 5:1 Canon zoom and a smaller matte box taking 4½" round filters for use with the prime lenses. The camera is seen above with the zoom and with the 15mm prime both of which have a BNCR type mount. The 1.5" viewfinder is shown in two of its four possible locations on the camera. It can also be rotated, and there is a button on the finder for reversing the image when it is used upside down.

Near the lens on the operator's side of the camera there is a level indicator to alert the cameraman to the need for a neutral density filter when the image is being overexposed. A red light will come on behind the figure 0.6, 0.04, or 0.2 depending on which filter is required. Next to this indicator there is a door which provides access to the gamma switch and the variable sensitivity control. There are three gamma settings that would be used in shooting (0.55, 0.45, & 0.35) and one setting (1.0) for use in testing the camera. The variable sensitivity control is a supplement to the sensitivity switch at the rear and can be used to adjust the sensitivity $\pm 30\%$ of the setting on the switch. It is especially useful in balancing two cameras or for making subtle adjustments not easily achieved with neutral density filters.

The sensitivity switch at the rear has three positions: normal, $\times 2$ and $\times 4$. Increasing the sensitivity two times or four times is the equivalent of pushing film one or two stops. Located with the sensitivity switch are the auto set switch, the auto white balance switch and the auto black balance switch. The auto set switch will automatically register the camera and balance the white and black if the camera is framed on the test chart. The auto white balance switch will balance the white when the camera is on any white object, and the auto black switch will balance the black by closing the lens. There are indicator lights to signal when the automatic adjustment is complete.



Harry Mathias, an independent cinematographer, shot a series of tests with the EC-35 and conducted a demonstration in Los Angeles designed to show how the camera simulates the look of film.

I don't think that video will replace film in the next few years. My feeling is that it is a tool that is available, and it's a tool that those of us who work in film will probably become more comfortable with and adept at using. I think the important thing is that the technology not intimidate cinematographers to the point where they don't use some of their techniques. Because they are nervous with the technology, a lot of cameramen who start working with videotape do things they would never dream of doing with a film camera—like leaving the camera on auto iris or lighting everything to 200 foot-candles or using a 3:1 lighting ratio. When they do that, then they start getting really poor results on video, and they start blaming video. I have lately done a lot of production on videotape using film lighting techniques and film operating techniques, and I found they worked pretty well.

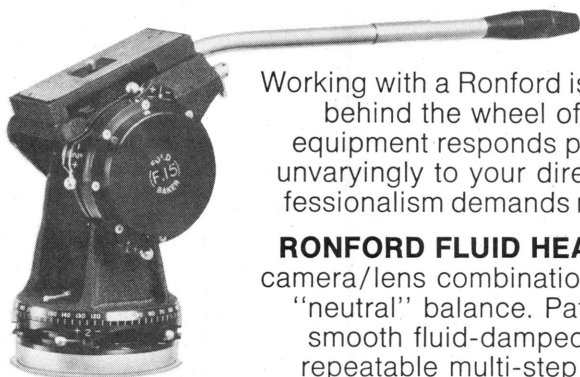
Once directors of photography understand the concept of rating the EC-35 according to ASA and metering the way they do with film, the difficulty of working with video will be pretty much the same as the difficulty of switching film stocks. When Kodak introduces a new negative stock, we work with it and learn how it behaves. With the EC-35 a cinematographer can approach shooting videotape the same way.

The most impressive thing about the EC-35 to me and the one thing that makes it completely unique is the way it responds to contrast. The EC-35 is different from video cameras in general in that it is designed to handle a latitude of seven stops. That's the reason it looks like film.

Making pictures is telling stories with light, and the medium we use is unimportant. The important thing is to be comfortable with video and to know that you really can exercise the same degree of flexibility with video as you do with film.

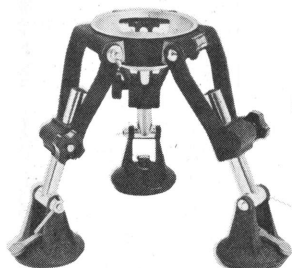
Harry Mathias
Cinematographer

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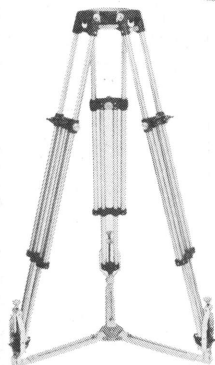


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Ikegami EC-35 SET-UP BOX

The computerized set-up box for the EC-35 is basically a tool for fine tuning and maintaining the camera and is not required during shooting. It can be connected to the camera during operation to provide remote access to camera controls, but the whole point of the system is to free the cameraman from the need for a video technician during shooting. There are creative uses for the set-up box, however, with which a cameraman may want to be familiar, and he can learn to use the set-up box himself very easily.

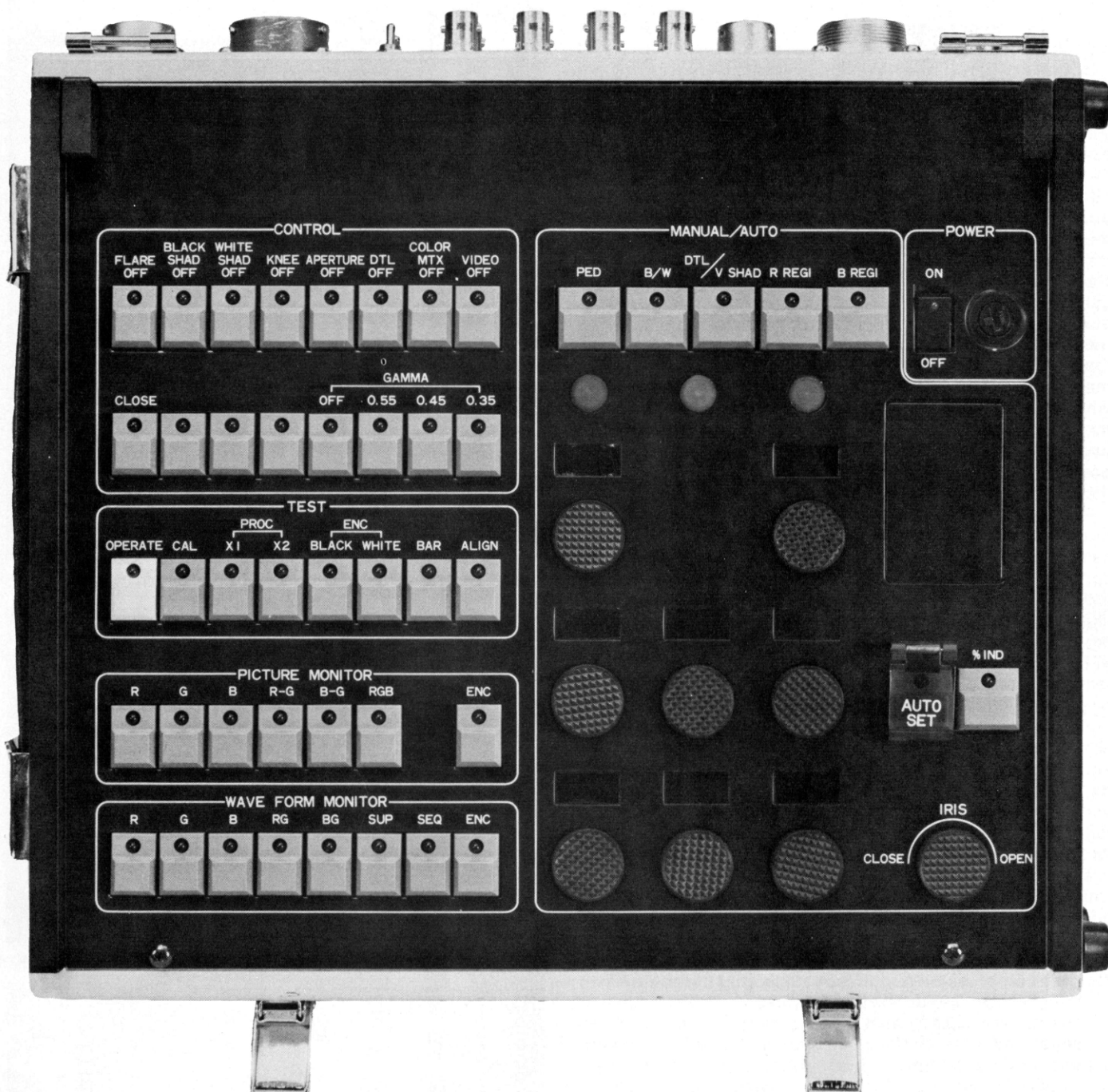
Some of the controls on the set-up box duplicate controls on the camera itself. Pushing the Auto Set button on the box does exactly the same thing as hitting the Auto Set Switch on the camera itself. Similarly the gamma switches on the box accomplish the same thing as the gamma switch on the camera. There is also an iris control on the box which can be used to remotely control the f stop. The switches in the section marked TEST are purely for testing and maintenance procedures that need not concern us here.

The set-up box is designed to be used in conjunction with a black and white picture monitor and a waveform monitor, and there are two sets of selector switches which determine exactly what will be displayed on each monitor. Because the camera can put out either a composite (encoded) video signal or three separate red, green and blue signals, there is a range of choices for what can be displayed. For example it is possible to do a quick check of the registration for the camera by superimposing the red and green signals on the picture monitor and then superimposing the blue and green signals.

The eight switches at the top of the section marked CONTROL simply shut off various circuits in the camera. Although these switches are primarily used in maintenance procedures, they can be used creatively since they do modify the look of the image coming from the camera. All a cameraman would have to do is push the button and see if he likes the effect.

It is the right side of the panel, however, that offers the greatest creative potential for the cameraman. There are eight knobs whose functions vary according to which button is pushed at the top. The alphanumeric display above each knob will indicate what function has been delegated to the knob. There are also red, green and blue indicator lights at the top which light up to indicate which video channel is being adjusted by the knobs.

Fine tuning the registration of the camera is a bit like a video game. If you push the Blue Registration switch the monitor will display the blue signal superimposed on the green signal and all 8 knobs will move the blue image in various ways relative to the green image. The number of variable controls enables the operator to move,



stretch, or bend portions of the blue image without disturbing other parts of it until it coincides exactly with the green image. The same process is then followed with the red image relative to the green by pushing the Red Registration switch. Once either is set, pushing the percentage indicator button will cause the display above each knob to indicate how far from normal the control is now set. This is called the trim. A trim store button located beneath a door above the Auto Set button will enter these adjustments into the memory in the camera so

that the set-up box can be unplugged and the camera will continue to register the image just as it has been adjusted.

Pushing the Pedestal switch will delegate separate knobs for red, green, and blue pedestal and one for the master to control all three channels simultaneously. Similarly the switch marked B/W will enable the operator to vary the gain and the gamma for each individual color or for all together. Note that the gamma can be varied continuously between the settings provided by the switch on the camera, and it can be set separately

for the red, green or blue channel. The percentage indicator button will cause the displays to indicate exactly where the gamma or gain has been set and the trim store button will enter these settings into the camera's memory. The Detail/Vertical Shading switch provides access to controls affecting the evenness of illumination in the image and the rendition of edges of areas or objects within the image. As with all the controls the best way to understand how this affects the image is simply to play with it while viewing a monitor.

Ikegami EC-35

KNEE AND GAMMA CONTROL

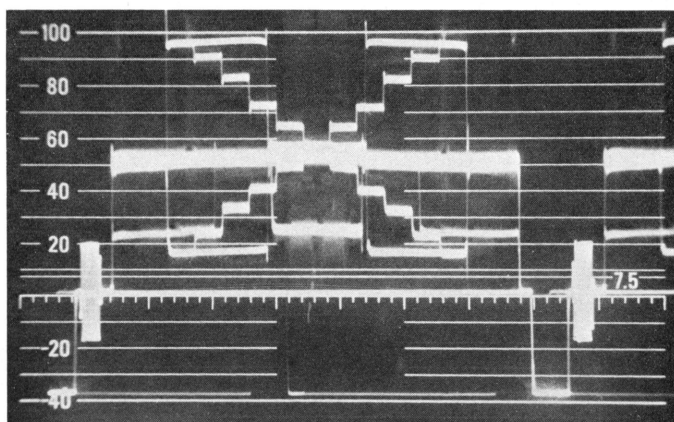
The knee compression circuit in the EC-35 can compress signals which are 600% of full exposure down to 110%, and the point at which it begins to compress the signal can be set anywhere from 50% to 150% full exposure (or nominal white level). Compressing the upper end of the exposure can be visualized as bending the upper portion of a graph relating exposure to density and is commonly referred to as the "knee" of the exposure curve. Gamma is the "slope" of the straight line portion of this curve. Instead of plotting an exposure curve on a graph, video technicians use a waveform monitor to graphically display gamma and compression. If a test chart including a standard logarithmic gray scale is framed by the camera, the waveform monitor will clearly indicate how the camera is responding to various levels or exposure. The waveform monitors depicted here are displaying the signal created by the special test chart for the EC-35. The test chart includes things designed to facilitate the automatic registration of the camera as well as the setting of white and black levels, so there is some extraneous information for our purposes. Nonetheless the chart does include two standard 10 step gray scales running horizontally in opposite directions, and these gray scales are represented by the X shaped pattern of short lines.

For the first example the knee compression circuit was turned off and the gamma was set at normal (0.45). This resembles the way a conventional video camera would respond to the chart. Since all of the chart falls within the latitude for a pick-up tube there is no indication of "clipping" of signals above 100% which would cause a loss of detail in highlight areas. Notice that peak white is at 100%, and the difference between the level for each step in the gray scale is relatively consistent. This is the equivalent of a straight line response over the entire range from black to white.

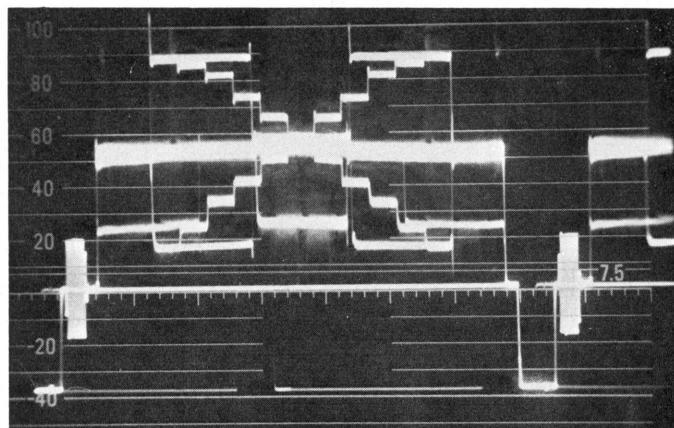
For the second example the knee compression circuit has been turned on and the upper portions of the signal are being compressed, i.e. there is not as much difference in level for each step in the gray scale towards the white end. Normally the circuit is set to begin compressing the signal in the region above 75% or 80%, since 75% represents the equivalent of flesh tone. Since there are no highlights outside 100% to start with, peak white now appears to be set at 90% — a fact which might be unsettling for the video man if he does not fully understand the system. The gamma is still set at 0.45, so that the lower portions of the signal remain unaffected.

For the third example the gamma has been set at 0.35 and the knee compression circuit is on. Lowering the gamma has the effect of opening up the blacks and bringing out detail in the shadow areas, i.e. gradations of tone in the shadow areas are separated more. At the same time, however, lowering the gamma tends to compress the highlights even more. Highlight detail is sacrificed for shadow detail. Another way of describing a lowering of the gamma is to note that the level of the mid-tone gray has shifted from 50 units to 65 units while peak white and dead black remain the same. In this respect analyzing the gamma of a video signal differs somewhat from an analysis of the gamma of a photographic process. With a photographic process the mid-tone is more likely to be pegged to a specific value while peak white and dead black change relative to it.

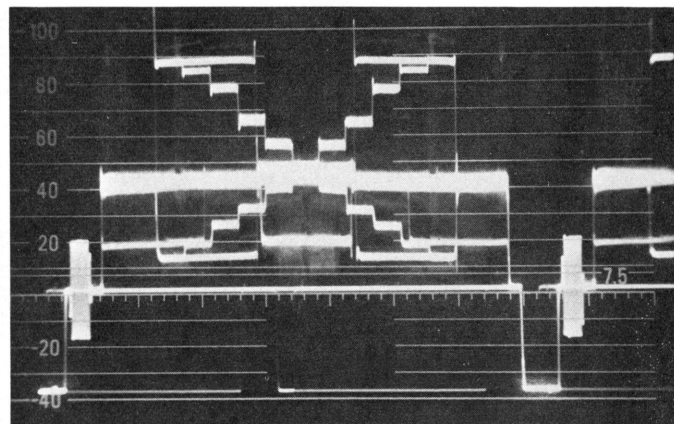
In the fourth example the gamma has been increased to 0.55. The mid-tone gray has shifted down to 40 units, and the blacks are now compressed. The highlights are now opened up with the result that there will be better rendition of detail in highlight areas.



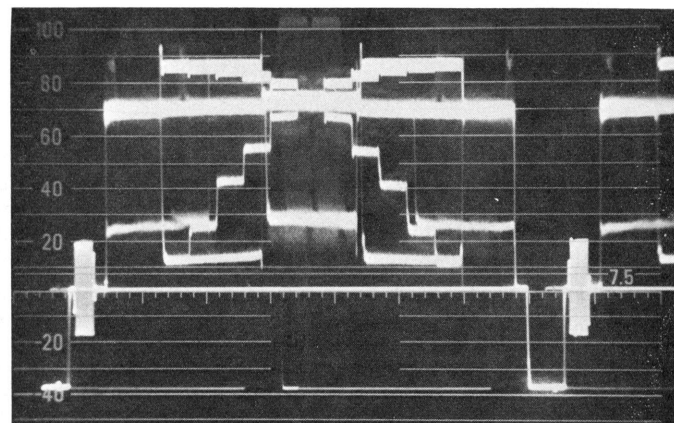
Knee compression circuit off. Gamma at 0.45.



Knee compression circuit on. Gamma at 0.45.



Knee compression circuit on. Gamma at 0.35.



Knee compression circuit on. Gamma at 0.55.

Moreover, there is provision for two viewfinders so that the assistant cameraman can view the image also. The viewfinder also incorporates several additional features. A "Super Peak" button activates a circuit that magnifies the image in the viewfinder as a focusing aid. The "Peak" control creates an artificial edge on objects in the scene. This occurs only in the viewfinder and is also an aid to critical focusing. The viewfinder incorporates the standard brightness and contrast controls, as well as a unique Zebra circuit that will indicate those areas in the viewfinder that are precisely at the proper skin tone level (79 IRE units) or at peak video level (100 IRE units). A digital display indicates remaining tape time. The EC-35 incorporates auto white balance, as well as auto black balance which will automatically adjust the camera for perfect color balance under any illumination.

The most unique feature of the EC-35 is the microprocessor set-up box and built-in memory system. This system allows the EC-35 to be anything you want it to be. For those who desire a video camera that requires absolutely no adjustments in the

field, the EC-35 is it. Before production begins, the video technician plugs the set-up box into the EC-35. The camera is adjusted to optimum image specifications and at the same time the Director of Photography can have the technician tailor certain controls for any particular "look" desired. All the adjustments are then memorized by the microprocessor in the camera. The set-up box is then unplugged from the camera. No further adjustment of the camera is required during the entire duration of the production. The set-up box can be left behind, as the camera maintains its memory of the set-up parameters for *months*. During production, the camera can be optimized by merely pointing it at a special test chart and pressing the "auto-set" button. When the set-up light goes out, the camera has automatically set itself by recalling all the proper calibrations from the memory. You don't need a crew of engineers with the EC-35. For all intents and purposes it functions as easily as a film camera and you don't even have to clean the gate.

At the other extreme, for the cinematographer who likes the creative flexibility of video, the EC-35 can accommodate unlimited possibilities. On location, at the D.P.'s option, the set-up box can be plugged into the EC-35, facilitating access

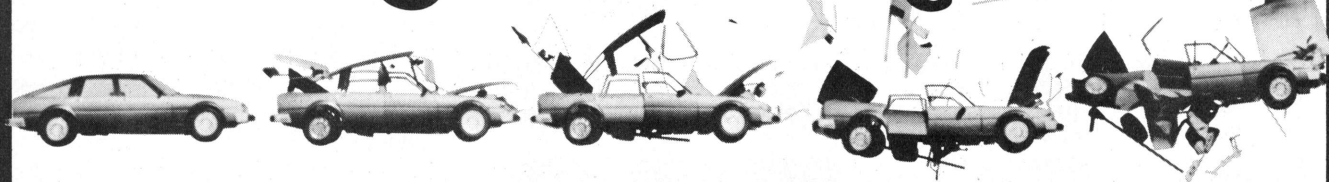
to the camera's internal controls.

The cinematographer can have a creative field day with the myriad possibilities. Control of master pedestal is similar to flashing. Individual red/blue pedestal can create "pastel shadows," both gamma and knee compression can be adjusted to create an endless variety of tonal effects, and the detail threshold and gain can be manipulated to soften or sharpen the image. It is like having Kodak design a special film for each scene. For the *piece-de-resistance*, each control has a digital readout so it can be returned to precisely the desired level, assuring consistency.

The EC-35 thus offers the best of both worlds. The built-in microprocessor/memory/auto set-up system provides a camera that requires virtually no attention whatsoever, yet with the set-up box attached it can provide an unlimited array of creative possibilities.

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BEHIND THE CAMERA ON "TAPS"

Stark cinematography for a drama about a group of cadets who take over their military academy when authorities threaten to close it

By OWEN ROIZMAN, ASC

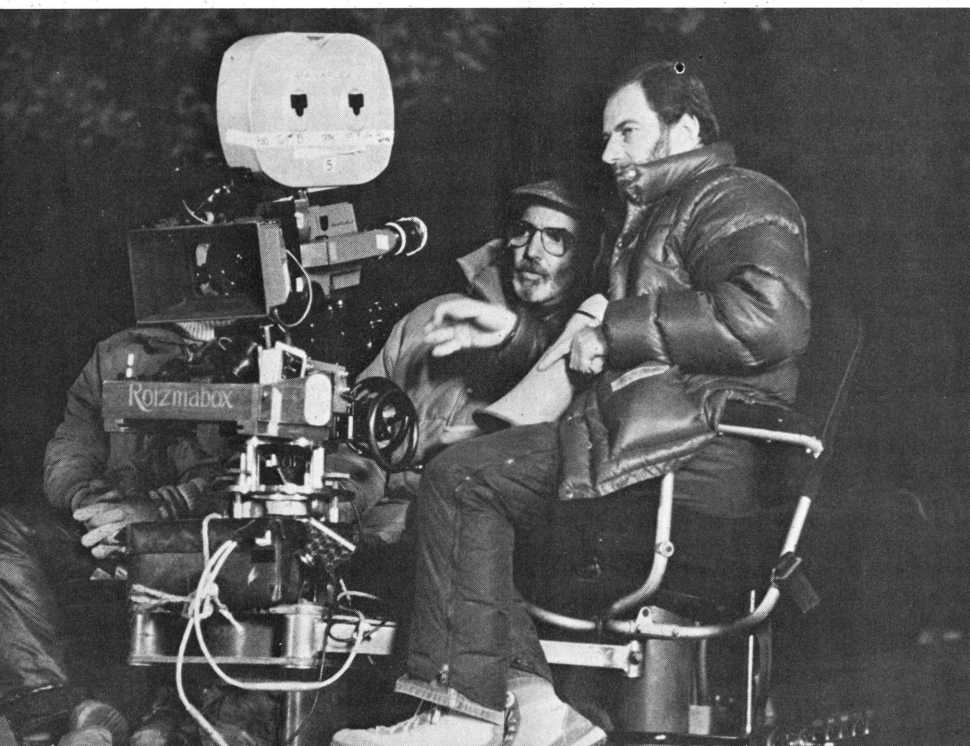
The action of TAPS takes place on the campus of Bunker Hill Military Academy, a school that has been turning out military leaders for 141 years. When the academy's superintendent, Brigadier General Harlan Bache (played by George C. Scott) makes the announcement on commencement day that the school is to be closed down and demolished to make way for a real estate development, he vows to fight that ruling and urges the cadets to do likewise. After he suffers a heart attack, following an accidental shooting just off campus, the cadets band together under cadet major Brian Moreland, the ranking student officer (played by Timothy Hutton), to carry out that mission and save their school. Their attempt at holding the campus by force of arms is challenged by the local police and a National Guard unit equipped with tanks and heavy-duty weapons.

When I first came onto TAPS as Director of Photography, it was a picture that had been started the year before, only to be shut down by the actors' strike. My assignment was ironical, because I had originally been asked by director Harold Becker to photograph the picture, but had been forced to decline because of another commitment. By the time production resumed, I was free to accept, but I found

that the locations had already been chosen and the sets had been constructed since the production had gotten pretty well underway before I was involved in it. The one major set that had actually been built was the two-story interior of the cadet dormitory. The rest of the shooting, both interior and exterior, was to take place mostly outside on the campus of Valley Forge Military Academy and Junior College in Pennsylvania. I was very happy with the sets and the locations that had been selected. They offered good material with which to work.

I decided after reading the script that the picture should have a very stark look. I thought of working with a high-contrast type of lighting and deep black shadows to make the effect as dramatic as possible. I had originally intended to make the beginning of the picture a little more luminous, a little softer, more pleasing to the eye, and then slowly, as various events occurred, to take it down to a more dramatic level. However, because we had to shoot so much out of sequence, it really became difficult to get a handle on this approach, so I simply adjusted each scene according to the way I felt at the time. The result is an overall dramatic look, rather than the pretty, soft look that I wanted in the beginning.

Director Harold Becker and Director of Photography Owen Roizman, ASC, preparing to shoot a night exterior scene for the 20th Century-Fox production of TAPS. Filmed entirely on location, TAPS represented the greatest load of night work Roizman ever faced—both in the amount of time that it took and the scope that it covered.



There were a lot of big lighting problems to consider. For example, filming the night exteriors on campus was almost like shooting in the desert, because you really didn't have any light sources. The place is under siege and nobody inside wants to turn any lights on, so the only light is actually coming from the police and National Guard units outside the gate. But since the academy is elevated above the road level, it would be theoretically impossible for that light to penetrate the campus. It was virtually like working without light sources.

Of course, during the beginning night sequence, when the first fight occurs, I had justification for light sources. It was supposed to be a festive occasion, the Commencement Ball, so I took the artistic license of keeping it sort of lit up, knowing that eventually I could take the same area and make it darker for the events that would follow.

The set constructed for the interior of the dormitory presented some interesting problems, because the room which Timothy Hutton supposedly occupies is established as being on the second floor. Logistically this proved to be cumbersome, so we cheated. We had him walk up the stairs and look down the hallway. Then we filmed all of the scenes inside his room down on the first floor to make them easier to shoot. This, of course, meant that we had to keep the backings looking like they were second floor backings. Also called for were many different moods, both night and day, in these rooms and the hallways, and all of this presented a lot of interesting lighting challenges. Most of the other "sets" were practical interiors on or around the campus.

The academy's chapel presented an interesting problem, because it was quite a huge place and we had to do a very long dolly shot down the center of it to open the picture. All of the light had to come from the outside—through stained glass windows. This meant that we had to rig parallels all around the building and mount arcs on them—beaming two arcs through each window. Even with all that light I just barely had enough illumination to get an exposure.

Then there was that long tunnel-like area behind the podium where George C. Scott stands. There was very little place to hide lights, except for a few very small units. Basically all the light back there came from three windows.

General Bache's office was a practical



(LEFT) Multiple cameras set up to shoot the opening dress parade sequence. (RIGHT) Camera operator on ladder shoots over the heads of spectators watching the parade. (BELOW LEFT) HMI lights were used to bounce light under a tent to illuminate faces of actors playing a scene there. Otherwise, very little artificial lighting was used in the filming of exteriors. (RIGHT) All filming for TAPS was done on the campus of Valley Forge Military Academy and Junior College in Pennsylvania.

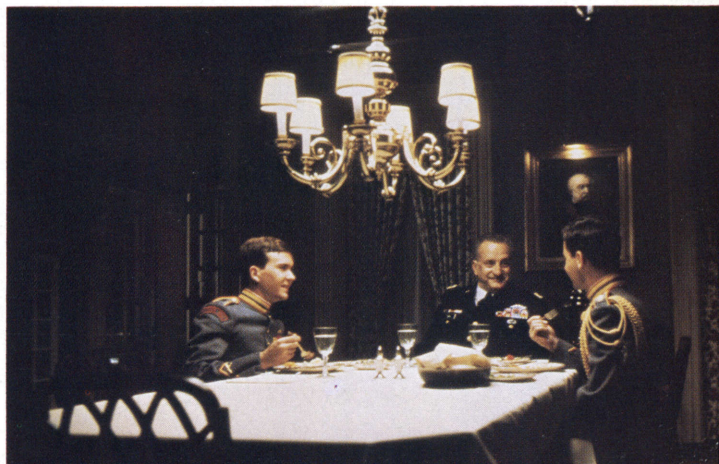
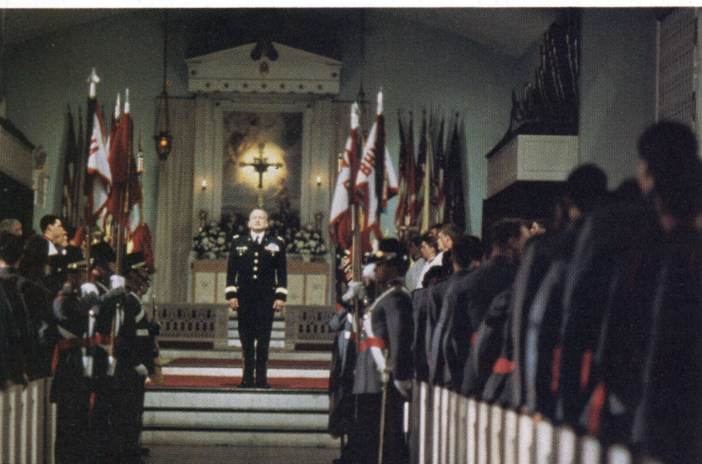


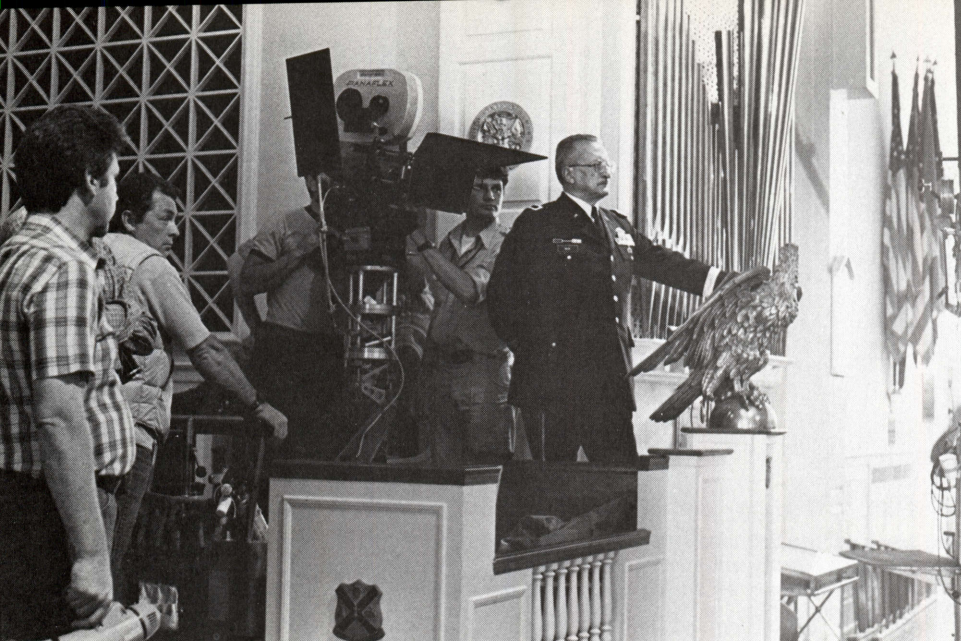
interior on the school grounds—actually just an anteroom that we dressed to look like his office. We had figured on using the windows of that room to shoot through and show some of the activity on the school grounds outside. As things turned out, it ended up being a cover set. It was

pouring rain outside one day when we had exterior scenes scheduled, but by the time we got all of our equipment inside the anteroom and rigged, it was almost dark outside, so we ended up shooting the day interior at night. The only way I could get it to look like day was to “blow out” the win-

dows and make them look bright. In order to get the blown out effect, we used tracing paper on the windows and then covered them with sheer curtains on the inside—just to break up the stark white of the tracing paper. I tried to tone that down a little bit so that it didn’t go pure white.

(LEFT) George C. Scott, as Brigadier General Harlan Bache addresses the cadets inside the chapel in the opening sequence of the film. Lighting the long tunnel behind him posed some problems, since there was nowhere to hide lights. (RIGHT) Gen. Bache hosts the cadets at dinner. For the rooms in the general’s residence an old historic home in Valley Forge National Park was used, with the rooms re-dressed to suit the requirements of the script.





George C. Scott takes his position at the pulpit in the chapel, while the camera crew sets up to shoot an over-the-shoulder angle. Basically, all the light behind Scott in this sequence came from three small windows, rather than artificial light units.

You could just barely see some of the ripples in the curtain.

Some subsequent scenes that we shot in that room were supposedly night scenes that, for scheduling reasons, had to be shot in the daytime. In such cases it was necessary to black in the whole exterior with tents and beam our lights through the windows in order to create the correct mood effect.

For other interior locations representing rooms of General Bache's residence we used an old historic home in Valley Forge National Park. After getting permission, we went in there and re-dressed the whole place to represent his dining room and study. We put in our own lamp fixtures and some wooden walls and different windows and arranged the set dressing to suit our needs. There was room enough in some of the areas for me to rig lights overhead, which made it possible for me to get the control I needed.

Fortunately, none of the practical interiors on location were so cramped that I



(LEFT) Director of Photography Owen Roizman, ASC, wearing a five-star general's cap, pulls rank on Assistant cameraman Tim Ryan. (RIGHT) While Director Harold Becker had originally planned to use static cuts predominantly, there were times when tracks were laid and dolly shots made to improve the pace of the action. (BELOW LEFT) The academy chapel was huge and all the light had to come from outside through stained glass windows. This meant that parallels had to be built all around the outside for mounting arcs. (RIGHT) Setting up to shoot inside the chapel.



didn't have any room at all in which to work. They all seemed ample. Some of the areas were actually larger rooms than we needed to shoot, so we were able to build "wild" walls and pull them if we had to.

The two-story dormitory set I mentioned earlier was constructed not on a studio sound stage, but inside a huge field house on the school grounds that accommodated both the dormitory and the armory sets. The armory set was designed so that the door leading into the field house became the outside entrance door to the armory, providing us with a "live" exterior background when the door was opened. We simply boxed in a small section of the field house and made it the armory. We put parallels around it and mounted arcs to beam through the barred windows.

Not only the students' bedrooms of the dormitory were built inside the field house, but also such adjoining areas as the shower room and the TV room. It was like having a huge sound stage right on campus. We had great rafters and catwalks to work from and rig our lights, so it was just like working in a studio. The access to it from the outside was a bit tricky. There were a couple of narrow roads that led up to it and getting the equipment in and out in the beginning was a bit difficult, but once we had that licked, there was no problem.

We started shooting in April, which meant that the full complement of students was there most of the time. The action of the picture supposedly takes place during late June, at the beginning of the summer session, and before the actors' strike occurred, it had been planned to actually shoot in the summertime. But we were forced to start shooting in April in order to catch up on lost time. The students were all attending classes and we used a lot of them as extras.

Sometimes we encountered a logistical problem in getting the students where we wanted them *when* we wanted them, because they were studying for final exams. It must have been just horrendous for those poor kids to have us shooting at night while they were trying to study—and very often we would shoot all night long because there were so many night scenes in the picture. Those problems were enormous.

We also had very serious weather problems. I don't know whether last spring was an "unusual" one in the East, but it seemed like no matter what kind of weather we wanted, it would turn out just the opposite. For example, the shooting of the funeral sequence stretched out over the course of about two months. Every

Continued on Page 396

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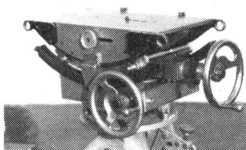
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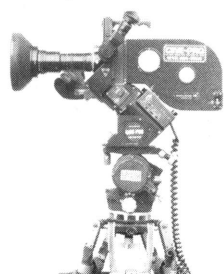
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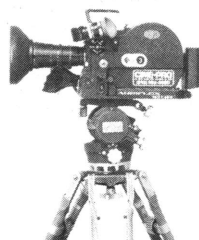
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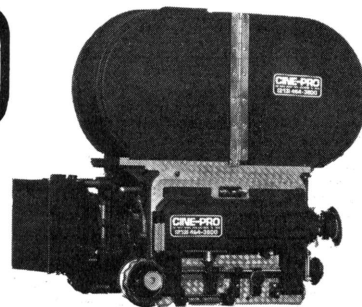
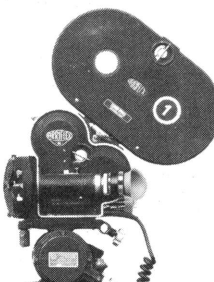
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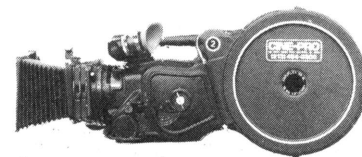
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Steve Irwin, Senior Colorist for Excalibur Video Systems, and his assistant, Denise Beauchaine, demonstrate the range of color correction possible with The System 60XL computerized color corrector in the telecine facility. It is possible electronically to alter the hue and/or saturation of one color without affecting the others and without affecting the white balance.

ELECTRONIC COLOR CONTROL

A color television signal originates as three separate signals representing the red, green and blue components of the image. For most transmission and recording these three signals are combined into one composite signal; but with the proper equipment it is possible to manipulate each of the components separately, thereby permitting a great deal of flexibility in the control of the overall color of the image. Because of the ways in which each color component can be separated from the rest of the image and the ways in which the signals can be manipulated electronically, it is possible to alter the color of an electronic image in ways that would be very difficult or impossible with film. In fact with some equipment you can do so many things to the color of an electronic image that sometimes your head starts to swim, and it becomes much more difficult to settle on the exact look you want.

In order to introduce our readers to the state of the art in electronic color control Excalibur Video Systems gave **AMERICAN CINEMATOGRAPHER** a demonstration of the computerized color correction system in their film-to-tape transfer facility. The facility uses a Bosch FDL-60 telecine and The System 60XL color correction system made by Corporate Communications Consultants, Inc. We put up a piece of 35mm negative test film from Kodak, one frame of which was stored digitally in the FDL-60; and Steve Irwin, Excalibur's Senior Colorist, proceeded to put the system through its paces while we shot 35mm slides of the monitor. Allowing for the fact that it is difficult to photograph a monitor and reproduce it on a magazine page with any accuracy, the accompanying images should provide some sense of the range of possibilities offered by the system. We chose to experiment using a film image with which many of our readers

will be familiar, but the same kinds of manipulations can be performed on an image originating from a video camera or recorded on videotape. The System 60XL was developed as a means of color correcting film as it is being transferred to tape, but it is obvious that it offers creative potential extending far beyond the necessity of ironing out imbalances encountered in a routine film-to-tape transfer.

In order to appreciate what is being done to the image electronically, it is helpful to understand a few basic things about a color video signal and to become familiar with two very common tools in a video production: the waveform monitor and the vectorscope. Being able to interpret information presented on a waveform monitor or a vectorscope is comparable to being able to interpret printer lights recorded on the timing card at the lab. You can just go by what you see on the screen, but it makes it a lot easier to get what you want if

you can talk to the timer in terms of printer lights. Similarly the waveform monitor and the vectorscope present graphically exactly what is being done to the image and make it easier to determine the kind of alteration which will give you the look you want on the screen.

Waveform Monitor

One important way in which a color video image differs from a color film image is that the color video image contains within it a black and white image which can be separated from the color components. This image is contained in the "luminance signal" which is a record of the brightness of each point in the image without regard to its color. Most video cameras generate the luminance signal by combining appropriate proportions of each color component into one signal, but some older cameras no longer in use actually had a fourth tube generating the luminance signal separately from the three color signals. In any case the luminance component of the video image can be processed separately from the color or "chrominance" signal. If the luminance signal is recorded by itself the result is a black and white image (Figure 3).

A waveform monitor is an oscilloscope with a rectangular screen which displays the "shape" of the video signal. It is essentially a graph plotting the amplitude (or brightness) of the signal on a vertical scale against time or position in the image from left to right. It can be made to display a single scan line (see Figure 3), but it is generally set to display a composite of all the scan lines for a given frame (e.g. Figure 2). The display on the waveform monitor in Figure 3 represents a single scan line somewhere in the middle of the frame. The picture information is represented by only those portions of the signal above the solid line about a third of the way up from the bottom of the waveform monitor screen. This line represents the "blanking level" for the signal, i.e. the level for the signal between scan lines or frames. The portion of the signal below the blanking level represents the synchronizing information. The particular scan line being displayed begins by going through the gray square on the left of the frame, then increases slightly in level as it crosses the gray background behind the girl. The first drop in level represents the shadow area in the hair on the left side of her face, then there is a portion of the signal representing the range of tones across that section of her face, followed by a drop for the shadow area of the hair on the right side of the frame and the mid-tone for the gray background again. The line on the waveform monitor is comparable to a series of

spot meter readings of the image going across from left to right in the middle of the frame.

The waveform monitor in Figure 2 is displaying all 525 scan lines simultaneously. The black, gray, and white squares are represented by the three lines on the left hand side of the waveform monitor; and the range of tones in the remaining picture area is represented by the area to the right of these three lines. (The portion of the signal to the left of the three lines representing the gray scale is not part of the picture, but is part of the signal which provides a reference for the color information in the composite video signal.) Notice that the level for the black square is slightly above the line representing the blanking level. This is the "black level" or "pedestal," and it can be adjusted to different levels in order to alter the image. Normally it is set to be $7\frac{1}{2}$ IEEE units above the blanking level. (An IEEE unit is a unit for measuring the amplitude of the video signal in terms of voltage.) The level for the pure white square in the upper left portion of the waveform monitor is the "white level," and it can also be altered as we shall see. Normally the white level is set at 100 IEEE units which represents the maximum brightness level that can be contained in the signal. The distance from the black level to the white level represents the brightness range which can be contained in a video image.

If the white level is lowered to about 50 units, we get the result shown in Figure 6. White is now gray, black is still black, and the brightness range covered by the image is compressed to about half of what it was originally. If the pedestal or black level is raised to 25 units instead of 70, we get the result shown in Figure 8. Black is now gray, white is still white, and the mid-tones have all been pushed up to a higher level.

It is also possible to "crush the blacks" by lowering the pedestal. Dead black still stays at $7\frac{1}{2}$ units and white is still 100; but all of the mid-tones are pushed down towards black with the result shown in Figure 10.

Setting the white level and the pedestal are very basic adjustments in any video set-up which do not involve changing the color components of the signal. They are often accomplished automatically, but they can also be used creatively.

Vectorscope

The waveform monitor tells us relatively little about the color in the image. For analyzing color it is necessary to use a vectorscope. In order to grasp what is being displayed on the vectorscope, it is not necessary to understand completely how the chrominance component of a video signal

is generated and combined with the luminance component. It is sufficient to know that the chrominance signal contains two elements: hue and saturation. The vectorscope is designed to display those two elements on a circular diagram in which hue is represented by degrees of rotation from a reference point and saturation by distance from the center of the circle. On a vectorscope for the NTSC color system standard in the U.S., the 0° reference point is at three o'clock (i.e. the extreme right hand edge of the circle). The six basic colors are positioned counterclockwise from that reference point as follows: magenta 61°, red 104°, yellow 167°, green 241°, cyan 284° and blue 347°. There are square markings on the vectorscope which are labeled to indicate the location of each "pure" hue; and, when color bars are used to line up the equipment, the signal is manipulated until the appropriate portions of the signal fall within the square markings on the vectorscope.

If we start with the black and white image in Figure 3, we can see what the vectorscope displays when there is "no chroma." The short horizontal line represents the "color burst" which is not part of the picture, but provides a reference for decoding the chrominance signal. If we turn the black and white image into a sepia image, we can see that the vectorscope displays a degree of saturation in the area between red and yellow (Figure 5). If we change it to a cyan image and really saturate the cyan, we get the results seen in Figure 7.

Color Correction

Figure 1 shows a straight transfer from the negative without any alteration at all. The system is reading it as though it were a positive piece of film. By putting the telecine system into its negative mode, we can reverse the polarity of the image and at the same time remove the orange mask giving us what we shall call our normal image in Figure 2. This represents an uncorrected transfer from the negative with all the controls for the color correction system set at unity. If we want to increase the saturation of the color overall, we can boost the overall chroma level. Figure 4 represents a boost of about 20 units of chroma. The difference is immediately obvious in both the image and the vectorscope. Because we have boosted the chroma level so much, there is some clipping in the chroma producing a loss of detail in the heavily saturated areas. Notice that the vectorscope shows red saturation extending beyond the edge of the scope. This represents the portion of the signal which is being "clipped" because it has been boosted beyond the transmission

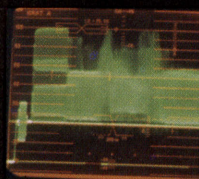


Figure 1: The negative image stored digitally by the telecine as though it were a positive image.



Figure 2: The image electronically converted from negative to positive but with no alterations by the color correction system.

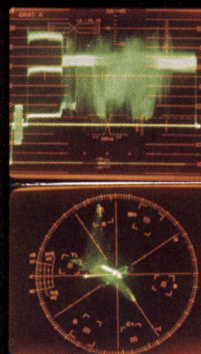


Figure 3: The luminance signal for the image. The waveform monitor displays a single scan line in the middle of the frame.



Figure 4: An increase in the chroma level of 20 units. Chroma is clipping. Detail loss in saturated areas.

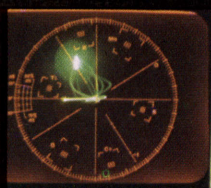
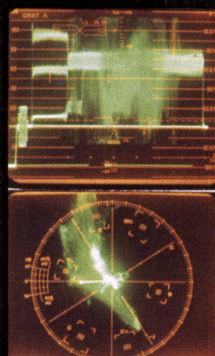


Figure 5: Sepia tone created electronically. Vectorscope shows chroma only in area between red and yellow.



Figure 6: White level down to 50 units instead of 100.

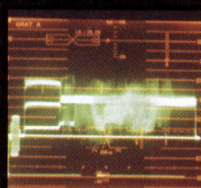


Figure 7: Electronically tinted with cyan. Vectorscope shows heavy saturation in cyan.



Figure 8: Raising the pedestal from 7 1/2 to 25. Peak white is still at 100.

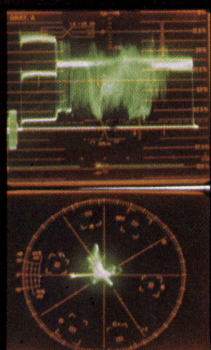
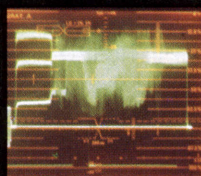
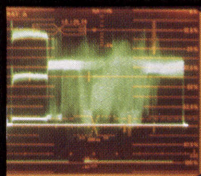


Figure 9: Chroma level decreased 20 units.



Figure 10: Lowering the pedestal crushes the blacks.



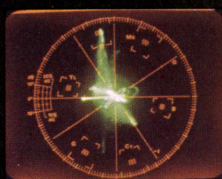


Figure 11: Increase green saturation. Decrease green density. Decrease red saturation. Increase red density. LCPM down 7 units.



Figure 12: Increase red saturation. Shift red hue towards yellow. Increase yellow density. Decrease overall chroma.

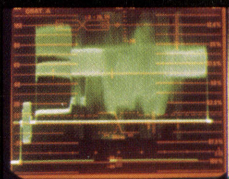
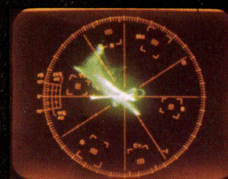


Figure 13: Increase red gain throwing off white balance.



Figure 14: Increase red pedestal.

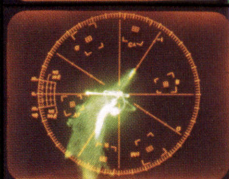
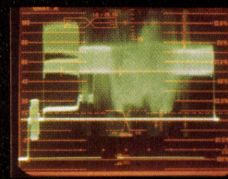
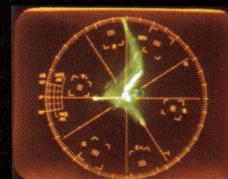
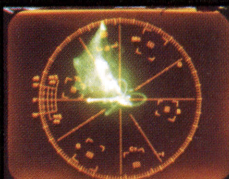
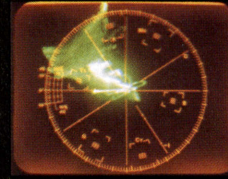


Figure 15: Increase red gamma.



Figure 16: Red hue shifted towards magenta.



capabilities of the video signal. If we decrease the overall chroma level by about 20 units, we get the results shown in Figure 9. Again the overall brightness range of the image stays about the same, but in this case the color is extremely desaturated. Both of these are extreme overall alterations which were made simply to demonstrate the range of possibilities with the overall chroma level.

Figures 11 and 12 represent two completely valid interpretations of the image that a colorist might offer as options to a producer. In both instances there is more color in the image, but it has been achieved by selectively boosting the saturation of some colors rather than boosting the chroma level overall. In Figure 11 there is an increase in green saturation accompanied by a decrease in green density, a decrease in red saturation accom-

panied by an increase in red density and an overall reduction of the contrast (actually a shifting of the middle densities slightly towards the black without altering the white or black levels). Trying to grasp the difference between the density of an individual color and its saturation underscores the complexity and sophistication of the 60XL Color Correction System. Changing the density of a specific color alters the luminance or brightness of the image in the areas containing that color, while changing the saturation of the color affects only the chrominance component of the signal, i.e. the basic brightness of the area is not affected even though the strength of the color is changed.

The results shown in Figure 12 were achieved by increasing red saturation, shifting the hue of the red towards yellow, decreasing the overall chroma level and

increasing yellow density. Even though the photographs as reproduced in the magazine are not completely faithful to the image on the monitor, it should be possible to see why everyone at the demonstration felt that this particular color correction was the most pleasing interpretation of the image. The shift in the red hue towards yellow is most obvious in the flesh tones and can easily be seen on the vector scope in comparison to Figure 11.

Notice that in both Figure 11 and Figure 12 the whites were not affected by the alterations in the colors. Pure white remains pure white (at least it did on the monitor even if it is not pure white in the magazine). In some less sophisticated color correction systems altering one color may affect the white balance for the signal. For example the red component of the image can be manipulated in the same way as



Figure 17: Increase red saturation.



Figure 18: Decrease red saturation.



Figure 19: Increase red density.



Figure 20: Increase blue density 40 units.



Figure 21: Decrease blue density.



Figure 22: Decrease red density.

the luminance signal by altering its gain or pedestal or gamma. Figure 13 is an example of such an alteration. The red gain has been increased, and the white balance has been altered so that the white, gray and black have become contaminated with color. Similarly Figure 14 shows how raising the red pedestal will contaminate the gray and black areas. The spreading of the line corresponding to the gray and white squares on the waveform monitors for Figures 13 and 14 is indicative of an improper white balance. Figure 15 represents an increase in the red gamma. White is still white but the gray has become contaminated.

With the System 60XL it is possible to alter the hue or saturation of one color without affecting the white balance. For Figure 16 the red hue was shifted completely to magenta. This again is an extreme example to demonstrate the potential of the system and not something one would choose to do except as a special effect.

Controls on The System 60XL

The System 60XL color correction system has 39 variable controls for altering the image. It is impossible to explain or demonstrate all the possibilities created by such an array of controls in an article like this, but perhaps the reader can begin to get a sense of the creative potential of electronic color control. One example described by Steve Irwin involved film footage of a sailboat on the bay in San Francisco. The production had been plagued with an overcast day, and the sky and the water both looked gray. In transferring to

tape it was possible to bring out the blue in the sky and water without altering the white of the sailboat simply by tweaking a few knobs. To accomplish this with film would have required an optical printer and several days.

The controls for the System 60XL color correction system are arranged in three groups of knobs. On the left end of the panel are 9 knobs controlling the gain, the gamma and the pedestal for the red, blue and green components of the signal. As is shown in Figures 13, 14 & 15 in which the red gain, pedestal and gamma are increased, these controls will affect the overall color balance of the image. A sample of an increase in the blue pedestal is shown in Figure 27. Each of these nine controls is independent of the other, and they are independent of the luminance controls as well, i.e. changing the blue gamma does not affect the brightness of the image nor does it affect the red or green components of the image. It does affect the white balance however.

In the center of the control panel are 12 knobs for controlling the saturation and the hue of the yellow, green, cyan, blue, magenta and red. Again these controls operate independently of each other and independently of the luminance controls. In a less sophisticated color correction system only the overall hue or the overall saturation can be altered. If you boost the saturation of one color by increasing the overall chroma level you boost the saturation of all the other colors as well. (Figure 4) Similarly if you shift the hue one direction or the other, you will shift all of the

hues in a less sophisticated system. This is easily seen on the vectorscope since the whole pattern will rotate one direction or the other. With the System 60XL's controls one portion of the pattern on the vectorscope can be made to rotate independently of the others (Figure 1b). These color compensation controls in the center of the panel were used to increase the saturation of the blue in Figure 23, to decrease the saturation of the blue and shift the hue slightly in Figure 24, to decrease the saturation of the yellow in Figure 25, to increase the saturation of the red in Figure 17, and to decrease the saturation of the red in Figure 18 as well as to manipulate the hue and saturation for Figures 11, 12, 5, 7, & 16. The ability to take the video signal apart and independently manipulate the saturation, hue or density of any of the six basic colors is the key to the flexibility and the creative potential of an electronic color correction system such as the System 60XL.

On the right end of the panel are 9 more knobs for controlling the luminance signal. There is a knob for the overall density which was used to bring the white level down as shown in Figure 6. There is a knob for controlling the luminance pedestal which was used to raise and lower the pedestal for figures 8 & 10. There is also a knob for what is termed "Luminance Convolution Process and Method" (LCPM). This is a control which can shift the picture information in the mid range towards either the white or black without altering the white or black level itself. The net effect is similar to adjusting the contrast on a tele-

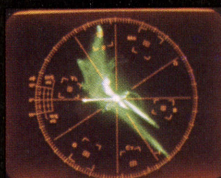


Figure 23: Increase blue saturation.



Figure 24: Decrease blue saturation. Decrease blue density. Hue shifted slightly.

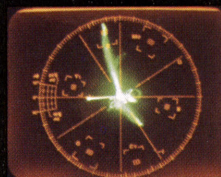


Figure 25: Decrease yellow saturation.



Figure 26: Increase yellow density.



Figure 27: Increase blue pedestal.

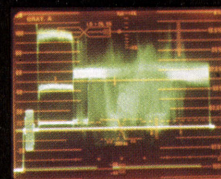


Figure 28: LCPM adjustment. Mid-range moved down.

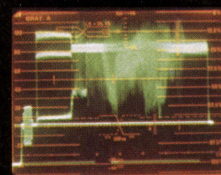


Figure 29: LCPM adjustment. Mid-range moved up.

vision receiver, although the LCPM control is a great deal more sophisticated than a simple contrast adjustment. The effect of adjusting the LCPM is illustrated in Figures 28 & 29. In Figure 28 the mid-range has been shifted down towards the black as is clear from the pattern on the waveform monitor. In Figure 29 the mid-range has been shifted up towards the white. In both cases the density or level of the white and black stay the same while the tones in between have been shifted one way or the other.

The final six knobs on the right hand end of the System XL control panel are density controls for yellow green, cyan, blue, magenta, red and green. These are luminance gain controls which can alter the brightness of the image for specific color areas without altering the brightness of other areas and without affecting the color balance. These controls were used to increase the density of the blue in Figure 20, decrease blue density in Figure 21, increase red density in Figure 19, decrease red density in Figure 22, and increase yellow density in Figure 26 as well as to alter the densities for Figures 11 and 12 as described earlier.

In addition to these 30 variables The System XL has a host of other controls which are beyond the scope of this article. What we have attempted to do here is not give an exhaustive and technical description of a particular color correction system, but to use this system to give the reader a sense of what is possible once a color image has been converted into an electronic signal. ■



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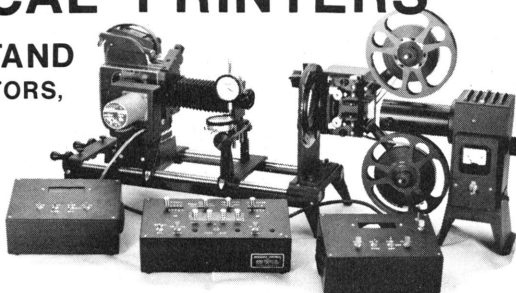
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TALKING TECHNICALLY Continued from Page 334

when it is tilted upwards or to stretch out like a giraffe to look through when it is tilted directly downwards. It also takes care of all the sharp little changes in helicopter altitude about the pitch, roll and yaw axes.

The front mounting permits the camera to be pointed in the desired direction, much like on a pan and tilt head. This part of the mounting has a fine balance control on it to adjust for the shift in the camera centre of gravity as film stock is transferred from the supply to the take-up side of the magazine. Balance is as critical as that.

Once the camera has been balanced and checked so that it can be placed anywhere without moving, the cameraman should control the camera in shot by touching it as little as possible. Any vibration or movement he might feel through the camera is him moving and not it. He should therefore guide it only with weak fingertips.

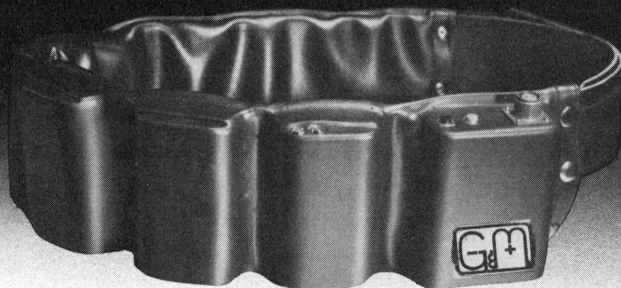
Because grabbing hold of the zoom lens to adjust focus and lens focal length would destroy all the free counterbalancing it is necessary to use trigger-operated servo lens controls which can be actuated without influencing the direction of the camera.

On a Tyler those controls are arranged so that the fingers of the right hand cause the lens to focus closer, to zoom out and the camera to start, and on the left hand to focus the lens to infinity and to zoom in.

Doing accurate focus pulls on the 250mm end of a 10:1 zoom lens in a helicopter when flying so close to a solid object that focus becomes critical, and when it's all going on around, is no easy matter, so the preferred method is to start a shot from a close-up, getting the focus correct while the helicopter is holding as steady a position as is possible, and then to zoom out to wide angle before adjusting the focus, and to tell the pilot to gently pull away as the lens passes the middle of its range. Nearer to the wide angle end of the range the cameraman tails off the zoom movement to blend it in with the aircraft flight and focuses towards infinity.

Many of the most incredible helicopter shots, including the famous Kodak Instamatic one, shot by Nelson Tyler himself, which starts with a wide angle shot of the whole of the Statue of Liberty and ends up with a big close-up of a guy in one of the viewing windows in the crowd who is holding a camera on which you can actually read the word 'Kodak', were shot either with the camera running in reverse or by printing it backwards on an optical printer. You can't believe everything you see. ■

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Q In studying video tape recorders, I have noticed that there are a number of tape widths such as 2", 1", 3/4", 1/2" and 1/4". To add to the confusion, material recorded on one manufacturer's 1/2" machine cannot be played back on another manufacturer's 1/2" machine. Did the motion picture industry have this same problem in its early development?

A Yes, most definitely. Starting with Thomas Edison's first camera patent in 1881, there have been no less than twenty-three different film formulas. We have, of course, standardized on Super-8, 16mm, 35mm and 65mm formats for modern-day filming. Some of the most unusual widths used during the evolution of film were 2 3/8" in the year 1895, 50mm—1899, 9 1/2mm—1930, 13mm—1920, 28mm—1918, 26mm—1920. Because of the speed at which the electronic industry moves, I am sure that it will not take them as long as the film industry to standardize on both format and recording and playback interchangeability.

Q In 35mm cinematography, is a pin-registered camera a must for all types of work?

A Although most 35mm cameras are pin-registered, many films or portions thereof have been filmed with cameras without registration pins. Some Arriflex, Eclair and, of course, the old standby Eyemo, do not have registration pins, and have been used successfully in feature work. Of course, pin-registration is a must for special effects, multiple exposure, title, background "plate" and similar types of critical work.

Q I am somewhat confused about the designations and differences in the cameras generally referred to collectively as the Mitchell "Mark II". Could you explain?

A The family of Mitchell Cameras collectively called the "Mark II's" represents an evolution of some twenty years. The original camera was designated the

"R-35", of which fifty cameras were built. Due to a basic design defect which did not surface until the camera was in the field, the entire production run was recalled and replaced by the "System 35, R-35 Mark II" of which several hundred are in use today. This camera is characterized by a leather carrying handle on top of the camera and magazines that mount on the rear of the camera, either underslung (which served as a shoulder rest for hand-holding) or through an adapter slantwise on the top rear of the camera.

The "Mark II" was superseded by the "S35R", which was similar in mechanical design and retained the single or three-lens turret of the Mark II, but could be loaded with a magazine directly on top of the camera or by the underslung magazine in the rear.

The "S35R" in turn was followed by the "S35RB" which was almost identical to the "S35R" with the exception that the turret was replaced by a "hard front" which was a casting accepting a single lens in a Mitchell BNCR lens mount.

The latest and current model of the camera which is still in production is the "S35RC" which incorporates some mechanical changes, as well as liquid crystal displays for the tachometer and footage counter.

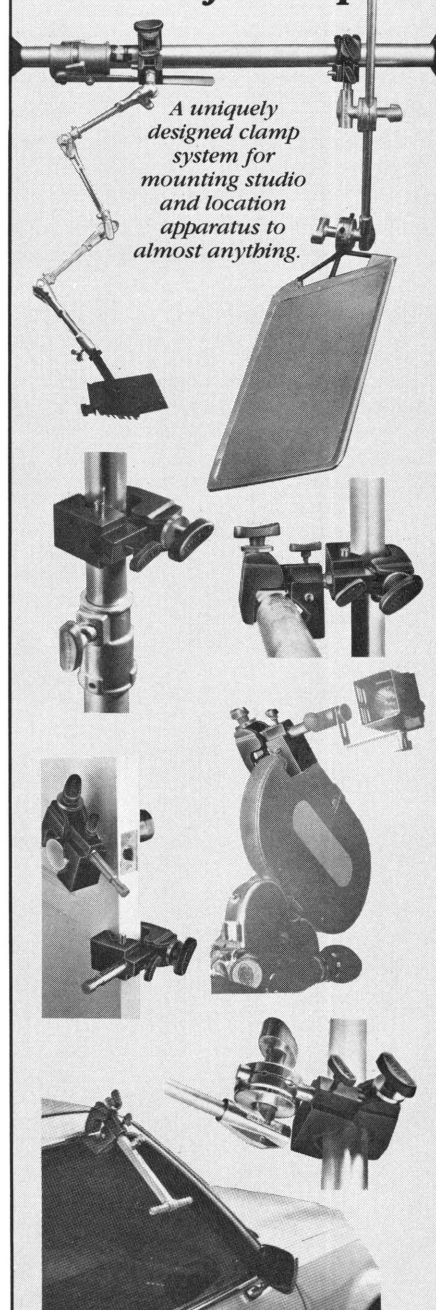
Great care must be exercised in ordering parts for these cameras, as there were four design changes in the movements since the original production of the R35/Mark II. To further confuse the problem, the R35/Mark II production started with serial number 101 and when 835 R cameras were started in production the serial numbers started over with 101 again.

Although the foregoing description applies to Mitchell-built cameras, further identification problems arise from "Mark II's" converted to top loaders by General Camera and 835R's and Mark II's "hard fronted" by either Mitchell or Cinema Products.

We encourage you to send us your questions on cinematography, as well as questions on the technical use of motion picture equipment. All inquiries will receive our prompt attention. ■

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ON LOCATION WITH "THE SOLDIER" IN THE AUSTRIAN ALPS

By HERB A. LIGHTMAN

Filming ski/stunt footage in the Austrian Tyrol for a James Bondish action/adventure spy drama includes a long wait for the right weather

ST. ANTON, Austria

Writing in the November, 1969 issue of *AMERICAN CINEMATOGRAPHER*, Brian Probyn, Director of Photography on Robert Redford's starring vehicle, *DOWNHILL RACER*, made the following prophetic statement:

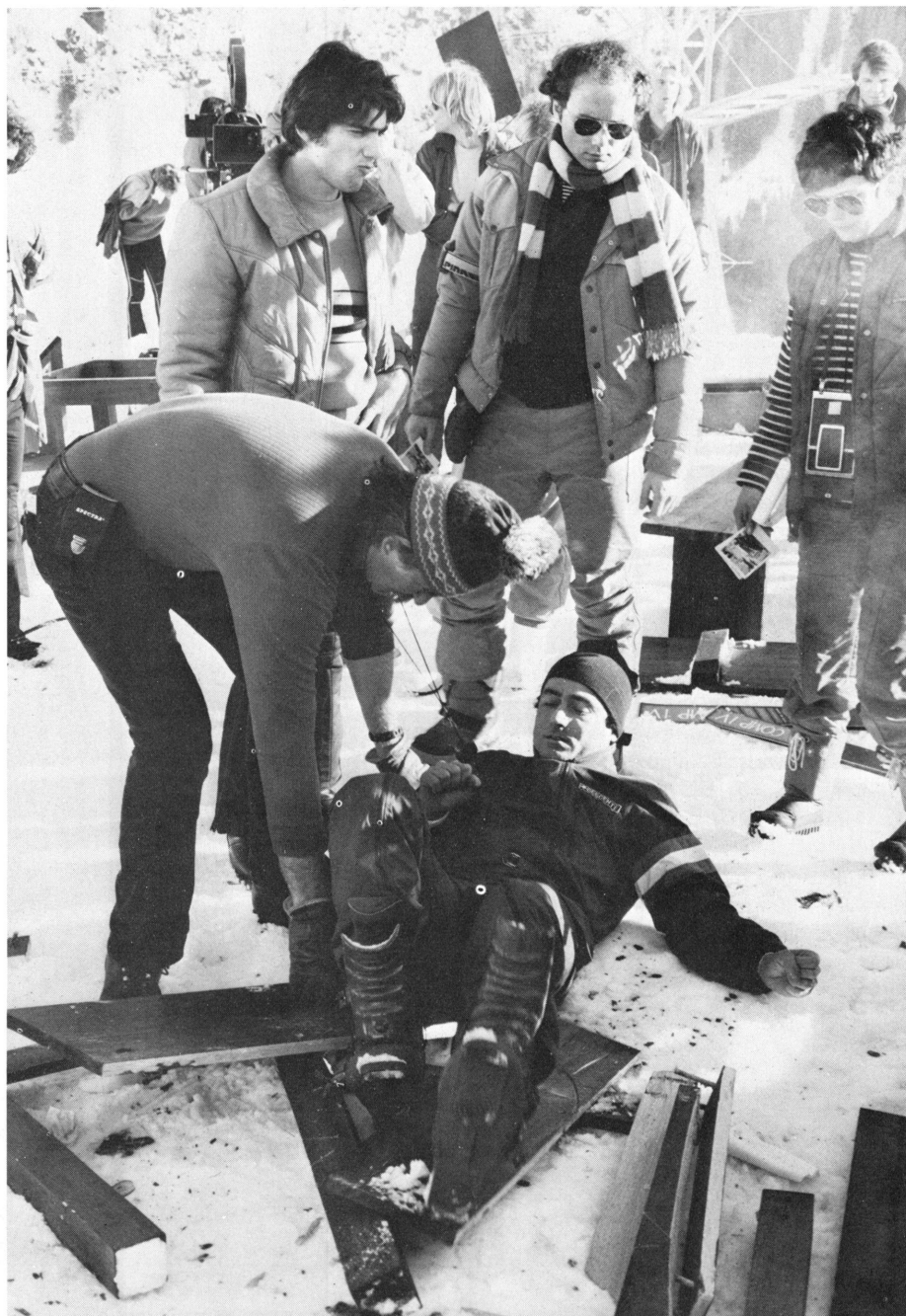
"On 'DOWNHILL RACER' camera tracking was done mostly on skis. It seemed that the most satisfactory thing

would be to get an expert skier and teach him how to use a camera equipped with a sports finder, set the stop for him, and send him out with a second unit. Obviously, this was the only kind of person who could keep up with racing skiers going at full tilt down the mountain.

The man selected was a young American racer named Joe Jay Jalbert who had never done any photography before. He is a very intelligent lad, quite a daredevil and a damned good skier. He got

some marvelous stuff for us, skiing forward and backwards and tracking right along with the racers. At first, as with all skiers, he got mostly shots of the skis running on the slope, but when we would show him the rushes he was bright enough to say, "Ah, yes—that's not quite it."—and then he'd correct it on the next run. He got us some beautiful shots, tracking all the way from the top to the bottom of the mountain. I don't mean to imply that this made him a finished photographer, but I think he could have quite a great future as that kind of specialist in America, with some technical assistance. If they need people like that, then he'd be a wonderful guy for it, because he has a definite feel for what is required."

On location in the ski village of St. Anton in the Arlberg valley of Austria, Director of Photography Robert Baldwin bends over to arrange a detail for the camera. Directly behind him (left) is Ken Wahl, who plays the title role of *THE SOLDIER*, and writer/director James Glickenhaus (right).



In the years that followed Joe Jay Jalbert did indeed carve "quite a great future" as a filmmaker, forming Jalbert Productions, Inc. in 1970 to produce television sports and specials, TV commercials, corporate films and feature films. In 1974 he and Kim Takal merged their talents to greatly expand their activity.

I did not meet Joe Jay personally until 1976 at the Winter Olympic Games in Innsbruck. I was behind a camera shooting *WHITE ROCK*, the official film of the Innsbruck Olympics (see *AMERICAN CINEMATOGRAPHER*, April, 1976) and Joe Jay had a couple of his crews nearby shooting some short films for commercial sponsorship.

It was, then, with great pleasure that I received a call from Kim Takal telling me that Jalbert Productions had been contracted to film some exciting ski/stunt action sequences in St. Anton for the Avco Embassy feature, *THE SOLDIER*. On behalf of Joe Jay and himself he was inviting me to the location to observe the shoot.

Even though I was in a very tight time squeeze when the filming was scheduled, it didn't take me long to accept the invitation. I had been to St. Anton before on a ski holiday with Horst Bergmann of Arnold & Richter, Munich, and I held fond memories of that beautiful toy village in the Austrian Tyrol. Add to this the thrill of being with a top professional crew filming wild sequences involving my favorite sport and it added up to an offer I could not refuse.

WARM REUNIONS

After the long polar flight from Los Angeles to Frankfurt and the short hop to

Munich, I am greeted by Horst Bergmann who has left the warmth of his hearthside on this blizzardy evening to have a brief reunion with me at the airport.

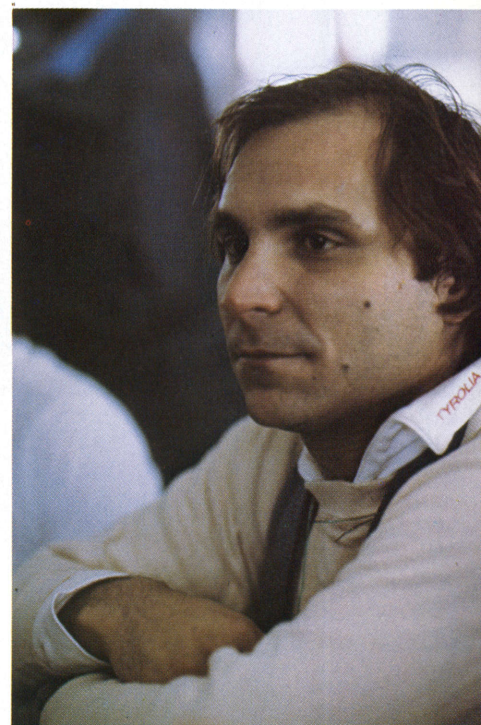
Also on hand to collect me for the four-hour drive to St. Anton is Markus Sprenger, the young Location Manager for the local filming of *THE SOLDIER*. A former ski instructor, born and raised in St. Anton, he has taken a leave from his medical studies in Innsbruck to provide invaluable aid to the film company.

After a pleasant drive through moonlit fairytale villages, we arrive at the Hotel Post in St. Anton, where I am accorded a warm welcome by Joe Jay, Kim and other members of the crew. They also give me a rundown on the project and the sequences to be filmed here.

Continued on Page 380

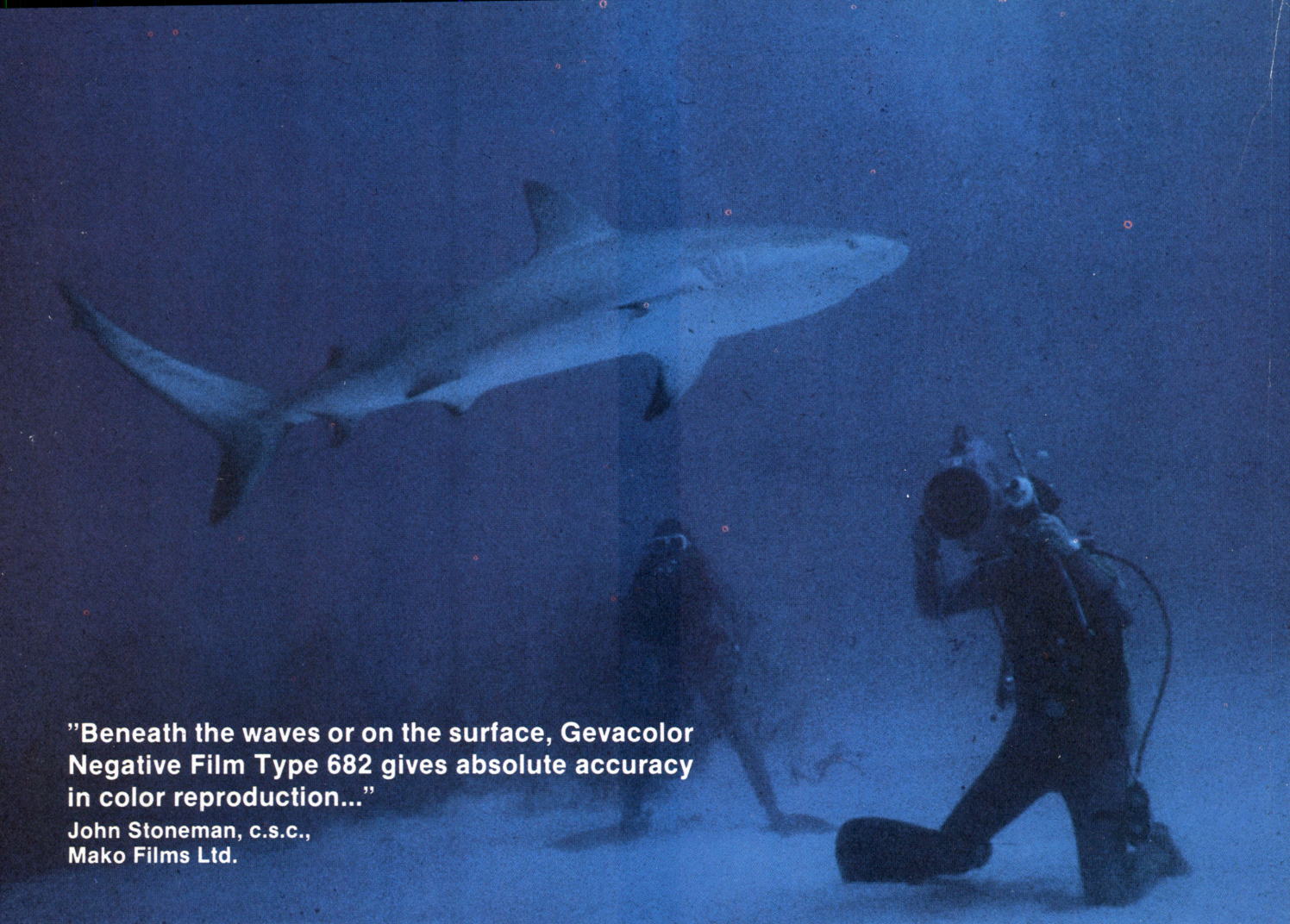


The main street of St. Anton, a "toy" village in the Tyrol that is also a famous ski resort. The dull (and often snowy) weather indicated here was typical of the five-day inclement spell that delayed filming of ski action.



(ABOVE LEFT) Jim Glickenhaus, writer/director of *THE SOLDIER*. (CENTER) Former collegiate ski champion-turned-filmmaker, Joe Jay Jalbert, in charge of second unit ski/stunt filming. (RIGHT) Producer/director/cinematographer Kim Takal, Joe Jay's partner in Jalbert productions, New York. (BELOW LEFT) A group of paramilitary specialists who take things into their own hands when terrorists try to blackmail the world with an atom bomb. (RIGHT) A snow-cat tows stunt skiers up a cat trail for one more take.





"Beneath the waves or on the surface, Gevacolor Negative Film Type 682 gives absolute accuracy in color reproduction..."

**John Stoneman, c.s.c.,
Mako Films Ltd.**

Photo : Barry Parker



John Stoneman, c.s.c., Mako Films Ltd.
Photo: Sarah Stoneman

John Stoneman, c.s.c., is Canada's leading underwater film maker and his multi award winning documentaries have gained him

world recognition. He believes that much of his success has come from his careful attention to both the subject matter of his films and also the important technical aspects that support them.

In particular he singles out the film stock that he uses, Gevacolor Negative Type 682, as one of the major factors for his success in this demanding and specialized field.

"Gevacolor Type 682 has proven to be totally reliable for me, even in the most adverse conditions. On our documentaries we can find ourselves on locations that range from countries with high temperatures and excessive humidity to sub-zero arctic temperatures.

We are always near salt water but no matter what the conditions, we have always found Gevacolor Type 682 to be totally reliable and trouble free."

Accuracy in the visual interpretations of the film is of major importance to John Stoneman, who is a very demanding cinematographer :

"Whether we are filming beneath the waves or on the surface, everything has to look right. I demand absolute accuracy in colour reproduction and Gevacolor Type 682 definitely does it perfectly. Colours are prone to be more real on this film stock."

"Another major factor with this film stock is its consistency. On one location, where we were miles from anywhere, we were



"Gevacolor Film Type 682 has proven to be totally reliable, even in the most adverse conditions"

**John Stoneman, c.s.c.,
Mako Films Ltd.**

Photo : Chuck Nicklin

forced to mix emulsion numbers. I defy anyone to tell the difference."

As a producer/director and president of Mako Films Ltd., Toronto, which is one of the most prolific of all the documentary companies that specialize in underwater film, Stoneman is keenly aware of the problems that can arise in post production.

"One area that I used to be constantly worried about with our films was during the final stages of post production when the negative is being handled regularly by both the negative cutter and the lab. It was not uncommon to see tremendous deterioration of the negative in the first check print. Now, Gevacolor Type 682 seems to be a

much harder stock and less liable to deteriorate. This is a major plus for any producer."

John Stoneman, c.s.c., is presently engaged on what he considers to be his most important film to date, a one hour television special on whale behaviour.

"The ocean is a very important part of my life and I have always wanted to produce a film about the gentle giants of the sea, the great whales. Now at last, I am able to accomplish this and with a film that is as important as this one is to me, it is satisfying and reassuring to know that I will be photographing it on a film stock that will record it accurately, Gevacolor Negative Type 682."

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PHOTOGRAPHING "THE SOLDIER" IN ALL KINDS OF WEATHER

By **ROBERT BALDWIN**
Director of Photography

(EDITOR'S NOTE: The following article was excerpted from an interview with Robert Baldwin, Director of Photography on the Avco Embassy production of *THE SOLDIER*, while the company was on location in the famed ski resort of St. Anton, Austria to film action sequences on the snow-covered Tyrolean Alps.)

THE SOLDIER was written and is being directed by Jim Glickenhaus. Having photographed his last feature, *THE EXTERMINATOR*, I was asked to do this one too. This is an international project. The story starts in Buffalo, then goes to New York City, Philadelphia, Israel, Berlin and now Austria. We've had many problems in

those other locations, mainly due to weather. Filming started in the fall and we knew we would be continuing on into winter and the cold. We knew that we would have to travel light, that there would be a great many stunts in the picture, that we would have to light a considerable number of interiors and that there would be many exteriors—both day and night.

A lot of the problems that we had foreseen actually developed. Shooting in upper New York state in the fall is always a real crapshoot as far as weather is concerned. We didn't have much cover because there aren't that many interiors in the sequence, so we were shooting under every type of weather condition—snow, rain, sleet (icy cold) and, some days, even sunshine.

BUILT-IN LIGHTING

One of the things that I did on this picture was get involved at the art direction level to the point where the set for the missile base which appears in the picture was totally built with the lighting already in it. When the set was designed I added enough light to shoot by and, during the actual filming, all I had to do was fill from the floor. Everything else came from the ceiling—even in the hallways. Since this was a missile silo that was supposedly underground, the set was lit entirely with fluorescents. We went to 3200°K fluorescents and filled with the same units on the floor. Since most of the lighting was "built-in" as practicals in the set, we were able to move very fast and get in a lot of set-ups each day.

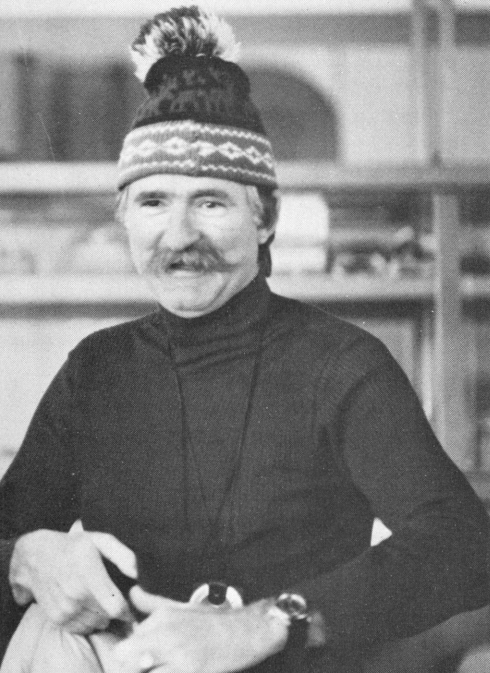
The exteriors of the missile base were shot night-for-night and, rather than lighting all the silos and other structures that we built, I decided to put red blinking lights

on the roof. We looked for aircraft marking lights, but couldn't find any, so someone came up with the idea of using red globes over regular household bulbs. We used them to outline the roofs of all the silos and other buildings in the installation—some of them blinked and some did not. Then I front-lit with three or four arcs to highlight the front and sides of the buildings, and once in a while stuck in another light just to point up some definition. The driveway leading up to the installation I outlined with photofloods to give it a yard-like look. In this way we managed to give definition to the street and all of the buildings, while us-



(ABOVE LEFT) Director of Photography Bob Baldwin takes a light reading inside tram car at St. Anton, Austria. (ABOVE RIGHT) Baldwin prepares to shoot a scene of Bad Guy Klaus Kinski inside the tram. (BELOW LEFT) Baldwin chats with visiting Dick DiBona, head of General Camera Co., which provided the Panavision equipment for the filming. (RIGHT) Baldwin had daily briefings with writer/director Jim Glickenhaus and ski filming expert Joe Jay Jalbert.





Versatile Bob Baldwin holds a degree in journalism and has worked as news photographer, freelance editor, associate producer and cinematographer.

ing very little light. We promoted a cherry-picker to get an "aerial" shot of the installation and it really looked good.

What helped a lot in this night-for-night shooting was the fact that we were using the high-speed A250 Fujicolor negative. After a lot of deliberation we had elected to use the Fuji stock, mainly because of the extra speed, but also because the Fujicolor negative provides softer colors and lower contrast, which we thought would be good in a film that has so much violent action.

THE "LOOK" OF THE PICTURE

One of the things that Jim Glickenhaus and I had discussed thoroughly in advance was the visual character that we wanted *THE SOLDIER* to have. We wanted it to look fairly slick without going too "Hollywoody." That was a tough order, because the subject matter is similar to

(for want of a better term) a James Bond vehicle. It has that same sort of basic adventure/spy-story character, but we didn't want it to look like a James Bond film. That's one reason we opted for the softer Fuji stock. It's not a tough-looking film; it's really a soft film. What happens *in* it may be tough, but the *look* of the film is not tough.

Also, in terms of the visual approach, I tried to maintain sharp focus and great depth of field all through the picture—what I call "Hollywood hard" (which means using a lot of light in relation to the stock)—so that we could stay sharp all the way to the back wall. You can do that with the A250 Fujicolor negative because you've got such a high ASA rating (250) that you can stop down for maximum depth of field. Eastman's new Color High-speed Negative 5293 (also ASA 250) was not available at the time, but I'm looking forward to using it, too.

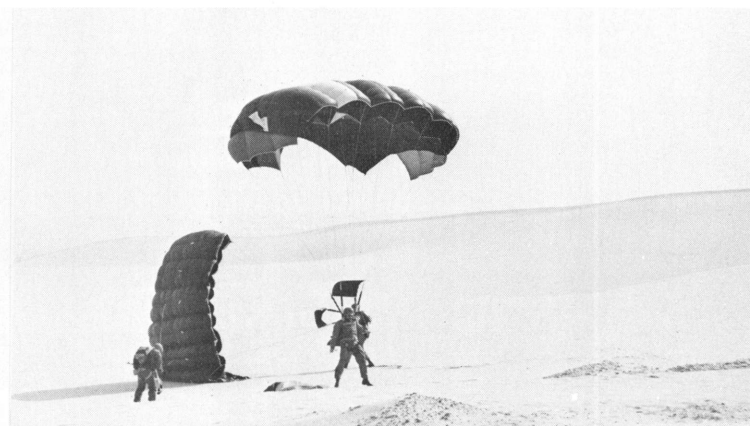
In order to maintain the high f-stops needed for maximum depth of field, I never shot wider open than f/4. Even on the night exterior street scenes shot in Times Square, where we were using super-speed lenses, we stopped down to f/3.5 and achieved a crisp, clean look. To insure maximum sharpness we didn't put any filters in front of the lens, except for the necessary 85 outdoors and an occasionally neutral density.

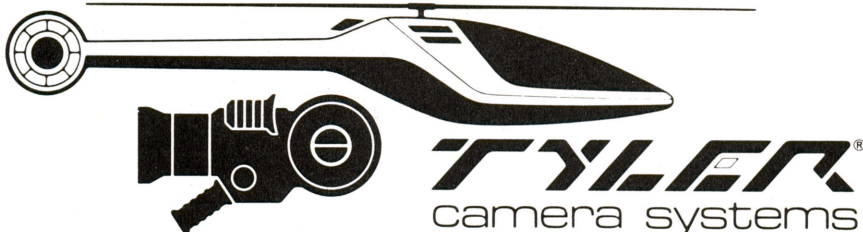
Considering the number of stunts in this picture, we didn't do a lot of camera moves, except where the camera was mounted on an aircraft or a car. We did helicopter stuff and we did POV shots from a glider doing loops, which is not a common maneuver for a glider. In that sense, we moved the camera, but otherwise we really didn't make a lot of camera moves.

Most of the stunts we've done have been one-time events, so we've used multiple camera coverage to shoot them. My rule of thumb, when using four or five cam-



(ABOVE RIGHT) Sequential photographs show car crashing through mock-up of the Berlin Wall, filmed in West Berlin just a block from the real thing. **(BELOW LEFT)** Hijacking of a truckload of plutonium involved the blowing apart of a semi-trailer truck by a bazooka shell. Then two guard cars were blown up individually. "There was an awful lot of fire," recalls Baldwin. **(RIGHT)** Parachuting sequence was filmed in the Israeli desert. *THE SOLDIER* is obviously an action-packed picture.





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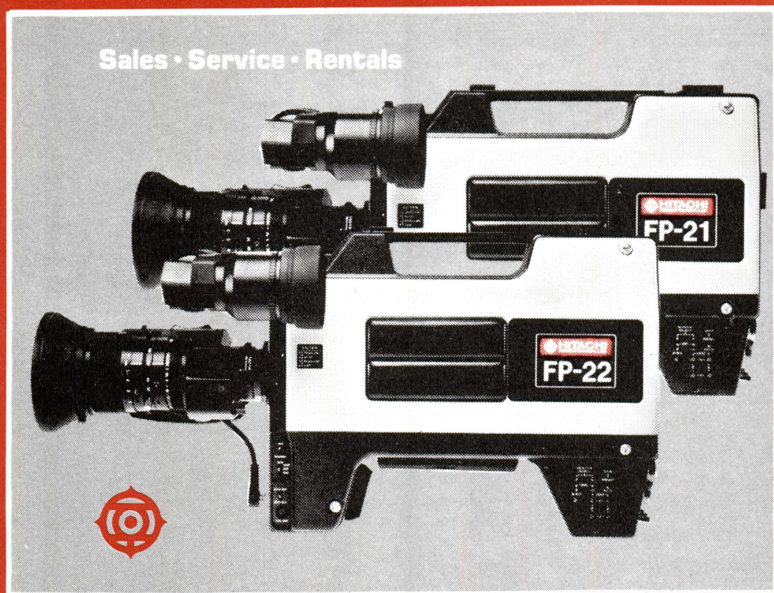
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eras, is to set them up in such a way that I can lose one camera completely and still cut together the footage from any two of the other cameras. Even in a high-speed or locked-off camera situation, I can change the lenses or change the moves, so that no matter what happens, I've always got the scene. As I said before, a lot of the action we film can be shot once only. There is no Take Two.

RED-HOT ACTION

The picture opens with a group of terrorists stealing a load of plutonium from a plant in Buffalo, N.Y. They take this plutonium and make a bomb out of it and ultimately hide it in an oil field somewhere in Saudi Arabia. The first sequence, which has to do with the hijacking of the truckload of plutonium, involves one of the biggest stunts in the picture: the blowing apart of semi-trailer truck by a bazooka shell. The tractor is blown away from the trailer, the tractor is hit again, and the saddle tanks blow up. Then two guard cars are blown up individually. There's an awful lot of fire.

I decided to keep the lenses in that sequence very, very long. The sequence opens on a 1000mm lens shot. The cut-back to the terrorists is on the 1000mm lens. The shortest lens used in that whole sequence of the blowing up of the vehicles (that is, until the fire is really going well) is a 500mm. This use of long lenses produces a look that is just incredible. You watch a semi-trailer come up over a hill, puffing and belching smoke, on a 1000mm lens, with the distortion and wiggling you get from that lens, and it's a beautiful thing to see. It gives you a real effect of compression and a feeling of terror in visual terms.

When the action moves to Israel we meet an Israeli woman spy who is the counterpart to our hero. We looked all over Jerusalem for a major office building that could serve as headquarters for the Israeli spy service in the film. In the course of that search we wound up on the high hill overlooking the Old City.

The colors in Jerusalem were made for Fuji film. It's the most beautiful scene in tones of brown that I've ever seen—and it's my favorite shot in the entire sequence. We are overlooking the whole city and there is a cemetery in the foreground with tombstones of a brownish, sandy color. The wall of the Old City is sandy color. The only really vivid color in the shot is the Dome of the Mosque, which is gold.

We put the actress, who is there to meet someone, in brownish wardrobe. She is carrying a bouquet of red carnations, so that when she walks into the scene everything is brown except for that bouquet.

Then she runs toward a helicopter that has come to pick her up. The only color in the entire sequence is the bright red of the flowers. The combination of the Fuji stock, the art direction, the weather and the character of Jerusalem make for an incredible color composition.

THE SNOWY CHALLENGE

Here in Austria we are in the process of shooting the last major stunt sequence of the picture. The scene is this: the soldier, our hero, is being pursued by two Bad Guys. He meets his counterpart from the East and they go up in what's called the *Vallugabahn*, which is the giant cable car that runs to the top of the mountain. When they get to the top, one of the Bad Guys manages to lock our hero in a small gondola-type cable car and it begins to move farther up the mountain. When it almost reaches the top, it gets blown up by a bazooka shell fired by a person lurking in the rocks somewhere on another mountain. Our hero survives, of course, but then there is a hair-raising chase down the mountain.

Here to work with us in the filming of this sequence is Joe Jay Jalbert and his crew from New York. Joe Jay is an expert at filming ski and stunt action in the snow, but a lot of the work he does is in 16mm so that he can hand-hold the camera while skiing straight down the mountain. He can hold the camera where you don't normally see it—down by his boot, out toward the end of his ski. He can hand-hold it while jumping off a cliff, skiing through the woods, everything!

But here's the problem we've run into. Joe Jay's footage is in 16mm, which means that it has to be blown up to intercut with the 35mm Fujicolor we've been using to shoot the rest of the action. We've found that the 16mm Fujicolor stock does not blow up too well. I'll probably get arguments on that, but our tests have proved that the 16mm Eastman color negative (7247) is sharper and has other positive compatibility advantages, even though it is more contrasty. Another consideration is the fact that some of the cameras we are using are GSAP cameras which use cartridges preloaded by Kodak. I wouldn't like to take the chance of reloading those cartridges with Fuji 16mm film, especially because it has a slightly thicker base. So those two considerations caused me to go with the 16mm Kodak color negative instead of the 16mm Fuji stock.

We are shooting as much 35mm footage as we can on the mountain and, in order to get the 16mm Kodak stock to match as closely as possible in the blow-up, I am using low-contrast filters on the 16mm

Continued on Page 378

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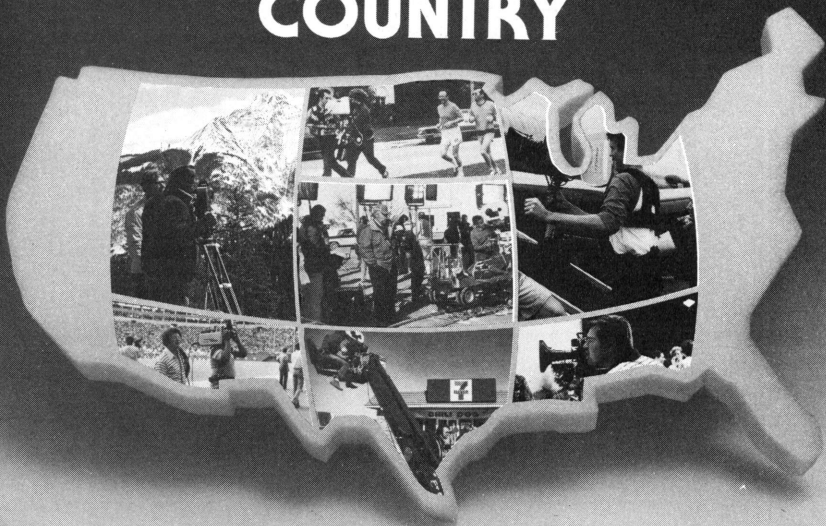
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MANILA INTERNATIONAL FILM FESTIVAL '82

Continued from Page 338

His Excellency Ferdinand E. Marcos, President of the Philippines, states, "The cinema is an industry and an art that transcends the boundaries of nations... What better proof is there of this than that here in our city the filmmakers of the world gather today to speak the language of film?"

To add to the pageantry, smartly uniformed Marine guards, each carrying a flag of a participating nation, march one by one onto the stage.

Then it's on with the show, and the presentation of the opening film, the People's Republic of China's *Plum Flower Embroidery*.

MIFF 82, as it is called here, is officially off and running.

HOW IT BEGAN

If any one person can be credited with the creation of MIFF 82, there is no doubt that it is the First Lady. The original idea and the vision it required for activation were hers. She spearheaded the campaign to bring a first-rate international film festival to Manila and followed through with steadfast determination.

Two years ago she took the first definite step toward making her dream become a reality when she sent a high-powered delegation to the Cannes Film Festival.

The delegation, made up of ranking officials of the National Media Production Center, Central Bank, Philippine International Convention Center and other government offices, interviewed film officials and saw for themselves how a massive international film festival is conducted. They reported back to the First Lady with the recommendation that such an event could, indeed, be staged in Manila.

A "dry run" for MIFF 82 was held last year with the presentation of "Manila

Events." With the knowledge gained from that experience, film festival officials set about preparing for the grand event.

All I can say, as an outside observer (but one who has suffered the slings and arrows of many film festivals around the world), is that MIFF 82 is the best organized and most efficiently run event of its kind that I have ever attended. And that opinion is not mine alone. I am to hear the same sentiments voiced time and time again during my entire stay in Manila—by members of the Press, by delegates, by visiting filmmakers, by film market people, and by just plain film buffs (who sell out just about every performance, to the point where extra screenings, often at midnight, have to be scheduled).

Moreover, it all seems to be carried off effortlessly and with constant warmth, courtesy and friendliness on the part of the many staff members.

As for the First Lady herself—she's a complete charmer. During the course of my stay in Manila I am to have the pleasure of conversing with her on several occasions. I find her to be a lady of stunning beauty, regal bearing, keen intelligence and boundless energy.

She is very considerate, too. For example, one night I am invited to a private dinner party at the Malacañan Palace (the Presidential residence). There Mrs. Marcos conducts me into her office (actually an exquisitely decorated music room) and introduces me to several special guests from abroad.

Afterward, as I am finishing dinner, I spy Roger Corman and his wife at a table across the room. I do a quick table hop to say hello, just as the entertainment begins. Rather than go all the way back to my table, I elect to stand at the rear of the dining hall to watch the show. Almost immediately a government functionary comes up to me and says, "The First Lady has been looking for you. She is concerned that you may not be able to

see the entertainment well enough and she has asked me to conduct you to a seat down front where you will be able to see it all perfectly."

He does exactly that—and I am deeply touched by her considerate concern.

When, after attending a couple of functions in my dinner jacket, I switch to the far more comfortable *barong*, Mrs. Marcos notices the transformation. Spying me in my new finery at an American Embassy reception, she smiles and says, "It's nice to see you in *barong Tagalog*."

A very special lady!

THE MIFF 82 SYMPOSIA

One of the first people I meet after settling in at the Festival is Ricardo (Dik) Trofeo, President of the Filipino Society of Cinematographers. Not only because of our parallel professional interests, but equally because he is such a genuinely nice guy, there develops an instant rapport between us. Very soon Dik and his lovely wife, Nita, and their charming kids become my "Filipino family." We attend many of the social functions together and enjoy each other's company.

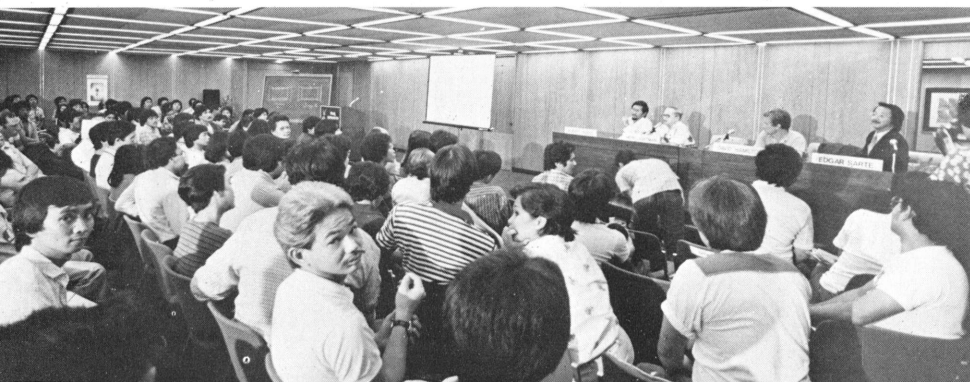
Also, I discover that although the official invitation for me to present a symposium on "*Trends in Cinematography and the Challenge for Cinematographers in the 80s*" came from Manuel De Leon, Director General of the Film Academy of the Philippines, the initial suggestion was made by Dik Trofeo.

I am in distinguished company. The others scheduled to present symposia include: Roger Corman (Film Production); Ben Resella (Scenic Design) Albert Johnson (Musical Scoring); David Hamilton (Still Photography); Myron Karlin, Kirill Raslogov and David Stone (Film Distribution); Joel Coler, John Friedkin and Fred Hift (Film Marketing); John Frankenheimer, King Hu and Irvin Kershner (Film Direction); and Peter Ustinov (Film Acting).

Unfortunately, my crowded film-viewing and press conference schedules prevent me from sitting in on most of these symposia, but I do manage to attend those of Roger Corman (practical, down-to-earth, full of the wisdom of experience) and Peter Ustinov (absolutely hilarious, with the audience practically rolling on the floor with laughter at every line).

As my own symposium draws near I am stunned when Dik tells me that it has been sold out for three weeks, with a continuing extraordinary demand for tickets. I am even more staggered when I see the assembled crowd overflowing the available seating, lining the walls, sitting on the floor

An attentive audience packed the lecture hall for the author's symposium on "*Trends in Cinematography and the Challenge for Cinematographers in the 80s*", followed by David Hamilton's symposium on "*Still Photography*". The technical symposia were especially well received by technicians of the local film industry.





(LEFT) Miss Imee Marcos, daughter of the President, and John Litton, dynamic Director General of the Manila International Film Festival. Litton expressed the hope that Miss Marcos, an avid devotee of Cinema, will be his assistant for next year's festival. (BELOW) President Ferdinand E. Marcos and First Lady Imelda Romualdez Marcos cut a ribbon of film symbolizing the official opening of the Festival and dedication of the new Film Center.

of the lecture hall.

Since I have been told that many in the audience will be film technicians from the local industry, I have slanted my talk toward rather a technical plane. I have also, at Dik's suggestion, included a state-of-the-art rundown on the latest Super-16 filming techniques, since it is felt that the savings in cost and current high quality of the format present advantages in low budget feature production.

In the question and answer session that follows I sense a tremendous hunger for knowledge of what is technically new and promising for the future of film production. I feel that I could go on answering questions all night, but I must stop to make time for David Hamilton's symposium on Still Photography.

Even though my symposium has been a heartwarming success, I tell Dik Trofeo that I wish I could have a rap session just with the local professional cinematographers to exchange ideas. He very kindly arranges a luncheon meeting and I am gratified at the large turnout on such short notice. We do indeed exchange ideas and I learn a great deal about methods of production used in the local film industry. I hope, also, that they gain a bit of new information from my answers to the many questions they ask me.

A SMASHING MOVIE

Having been a film addict from my earliest childhood, I regard an international film festival as a *smorgasbord* of film fare at which I can gluttonously overindulge—much to the chagrin of certain of my colleagues who fail to understand why I am willing to forego some of the lush social events in order to watch films.

By the time MIFF 82 draws to a close, I shall have viewed almost 30 feature films, most of which are excellent. Space limitations preclude my commenting on each of



these, but there is one that I feel deserves special comment and that is the New Zealand film *Smash Palace*. It was written, produced and directed by Roger Donaldson, a young filmmaker I had met during my last trip to New Zealand four years ago and who (together with several of his cohorts) had been kind enough to drive me to the Auckland airport and see me off for home.

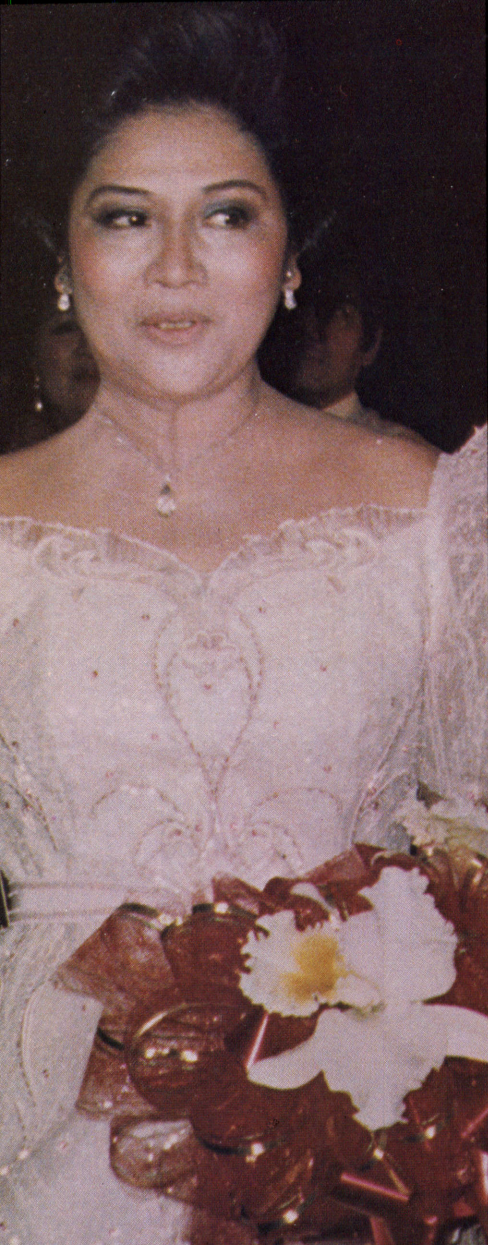
Smash Palace, described in bare bones terms of plot and characterization, doesn't sound all that special. The storyline reads: "A grand prix racing car speeds along a New Zealand country road. In it is a man who is obsessed by cars—an obsession which has led to the breakup of his marriage. His wife is a French woman who married him at the height of his European racing success. But she has become increasingly alienated from their isolated life in a back-country town. And

finally she has left him, taking their nine-year-old daughter with her. She has also entered into a relationship with the man who was once her husband's best friend. Thus the scene is set for an explosive confrontation as the racing driver sets out to get his daughter back—at any cost."

Despite the "soap opera" elements of its plot, the subject has been handled with refreshing originality, including some totally unpredictable twists and a dollop of off-beat humor to relieve the heavy drama. All of this plus a *tour de force* performance by lead actor Bruno Lawrence.

I contact Roger Donaldson, who is also stopping at the Manila Hotel and we get together for a pleasant reunion, during the course of which he tells me the following facts about the making of *Smash Palace*:

"*Smash Palace* is a difficult movie to put into words. It's very much a 'movie-movie,' if I may put it like that. The things



The First Lady deserves the highest praise for her vision, inspiration and determination in making the Manila International Film Festival a reality.

that make *Smash Palace* work are those little subtleties and details that only a movie can give you. To try to describe them in terms of a story line is virtually impossible.

"It's not a story that's concerned with a particular issue that exists only in New Zealand. I feel that the 1980s is a time of quite dramatic social change, in terms of human relationships, and *Smash Palace* is concerned with those social changes. This is especially true in America, which is similar to New Zealand in background and the sort of problems that the family unit is going through. It's a story that has as much significance in America as it does in New Zealand and the Americans have been the most enthusiastic about it.

"We shot the film on Arriflex equipment and we found a 300mm Canon lens that

we used quite a lot. I really loved using it because I wanted the film to have that look that a longer lens gives it—a feeling of isolation. We tended to use low light levels most of the time for interiors in order to achieve a very naturalistic feeling. We threw away as many filters as we could because I wanted it to have a very sharp kind of look. I didn't want it to be a soft, romantic sort of image.

"Our shooting schedule was six weeks and on that sort of a schedule you haven't got a hell of a lot of options as to what happens if the clouds come over or it rains. When you get into a shoot like that your options get less and less as you get closer to the end of it and as you use up all your interiors to cover for problems of exterior lighting.

"The main location was an actual wrecking yard in the middle of the North Island of New Zealand. It's dedicated to collecting American cars of the 20s, 30s and 40s. There are no sets in the picture. Everything was actual locations filmed in the small town where we were based. We took over the local motor camp and lived in caravans. It was great. It was one of those rare pictures you work on where everybody gets involved in the picture. I put that down to Bruno Lawrence's charisma. He had the effect of pulling the whole cast and crew together to work toward a very special result."

Bruno Lawrence is indeed a charismatic figure. I encounter him in the Manila Hotel elevator and find that he has the suite directly next to mine. I introduce myself and congratulate him on his stunning performance. I also predict that he will win the Festival's "Best Actor" award, since I have seen no other performance to touch his. [When he actually *does* win, I am delighted.]

AS TIME GOES BY

The days of MIFF 82 are full indeed—as are the nights. For me each day begins with an 8:30 a.m. press screening—usually one of the features in competition.

At a dinner at Malacañang Palace, leis are offered to director Satyajit Ray, Chairman of the Jury, Madame Marcos, and Jack Valenti, President of the Motion Picture Association of America. The dinner was followed by a lavish entertainment.



There is another press screening at 2:00 p.m. In between there are symposia, press conferences, official luncheons.

Late afternoons are spent in viewing outstanding films not in competition, recording interviews, affecting reunions with members of the film community from all over the world whom I've met in their own countries or on my own home turf, Hollywood.

And then there are the nights, each one of which presents such a choice of diversions that I find myself wishing I were twins or triplets. The social functions that crowd each evening are too numerous to list, but there are two spectacular events that bear more extensive comment.

The first of these is a cultural show entitled "Kasaysayang Pilipino," held in the Folk Arts Theater—which is in itself a stunning piece of architectural sculpture.

The show is no simple folklorico effort, but rather a massive production staged on a scale the likes of which Broadway has never seen. Impeccably choreographed, superbly costumed, elegantly staged and with magnificent music to back it up, it is a stunning presentation that involves hundreds of singers and dancers garbed in regional and tribal dress. The thousands of guests, seated at tables, then partake of a delicious buffet dinner. It has the magic that one experienced at the Tehran International Film Festival (in happier days), but on a far more elaborate scale.

The other outstanding event, known simply as "Manila Night" is an outdoor *soirée* that takes place within the ancient, battle-scarred ramparts of Intramuros, Fort Santiago, part of the old Spanish walled city of Manila. There is a torchlight parade through the narrow streets, food and drink served from ornate tents, fireworks and music—and the lovely, dignified Filipina ladies in colorful gowns gliding through the night.

THE MOMENT OF TRUTH

Inevitably, inexorably, the Manila International Film Festival has moved forward



The most spectacular social event was a cultural show, "*Kasaysayang Pilipino*", a massive production with "a cast of thousands", staged in the vast Folk Art Theater. (BELOW) The impeccably choreographed and beautifully costumed show included the famous Bamboo Dance.



to its close.

The Closing Night festivities begin with a Gala Premiere at the Film Center of the Filipino film, "*Kisapmata*." This is followed by what everyone has been awaiting: the presentation of the Golden Eagle Awards to the winners of the Film Competition.

Marine guards bearing the banners of participating nations stand by on the stage of the Film Center as President Marcos personally presents the following awards:

BEST PICTURE: 36 *Chowringhee Lane* (India)

BEST ACTRESS: Lyudmila Gurchenko in *The Beloved Woman of Mechanic Gavrilov* (USSR)

BEST ACTOR: Bruno Lawrence in *Smash Palace* (New Zealand)

BEST DIRECTOR: Goran Markovic for *Majstori, Majstori* (Yugoslavia)

SPECIAL JURY AWARDS: *The French Lieutenant's Woman* (UK), *Gallipoli* (Australia), *Vabank* (Poland)

Outside the Film Center, as we leave following the awards presentation, there is

American Cinematographer Editor Herb Lightman met with a dozen of the top cinematographers of the Philippines at a luncheon "rap session" very kindly arranged by Ricardo (Dik) Trofeo, President of the Filipino Society of Cinematographers (sitting next to Lightman in dark shirt). The exchange of technical data was valuable to all who attended.



another magic scene in progress. Skyrockets burst in the night sky; the throbbing of drums is heard as colorful performers move through the paces of the Dragon Dance in the adjoining Plaza; illuminated fountains, spraying liquid crystal into the air, splash melodically. Magic!

We stroll toward the nearby Philippine International Convention Center where, in the Reception Hall, sit-down dinner for several thousand guests has been prepared. During dinner we are entertained by top soloists and musical groups of the Manila classical music community.

Then those of us who have conducted the various symposia for the festival are presented with magnificent plaques. When the First Lady hands me my plaque she says she hopes I have enjoyed my stay in Manila. When I reply that I have indeed, it strikes me as the understatement of the year.

A marvelous rock band strikes up music for dancing. The President and First Lady are the first on the dance floor, quickly followed by the rest of us. It is a terrific party and a "blaze of glory" in which to end MIFF 82.

THE SUMMING UP

On my last day in Manila I meet with John Litton, the dynamic Director General of MIFF 82, who has with him Miss Imee Marcos, one of the two beautiful daughters of the President and First Lady.

Litton tells me that he hopes to have Miss Marcos, a serious student of the cinema, as his assistant for MIFF 83.

I ask him how he managed to assemble such an array of extraordinary films, both in and out of competition.

"At great expense to my family life, I traveled for 10 months all over the world, seeing as many as 1,326 films—from which I culled the 20 films that were shown here in competition," he tells me. "I am trying to shape this festival to the point where it will be a festival of quality only. Also, as long as I have anything to do with the policy of this film festival, we will exclude poli-

tics from it. I don't want to happen to this event what is now happening to the Olympic Games. I feel that it must be a film festival *for* film people, *by* film people."

He goes on to say that he hopes the Manila Festival will have the residual effect of raising the quality of the local film product and that he is looking to Miss Marcos and the young filmmakers she represents to help in this respect.

"We have film school graduates from America and England, as well as from Japan and Hong Kong," she tells me. "The problem is that they are currently unable to find the kind of work that they would be best suited to do, because the filmmaking industry in the Philippines is, to a great extent, what one might call 'unenlightened.' It turns out a very crass and sort of typically commercial product. We would like to change that and, perhaps, have an entry worthy of participation in competition next year."

Back at the Manila Hotel (which has to be one of the world's great hostelries) I pack in preparation for leaving and I find myself musing about the reasons why MIFF 82 has been such a resounding success.

There are several reasons. First of all, the incomparable facilities. Nowhere in the world does there exist such a complex of multiple screening rooms, theaters, offices, conference rooms and banquet halls—all within close proximity.

Secondly, the superb organization and high degree of efficiency that has characterized every aspect of the operation.

Third, the personal and dedicated leadership provided by the First Lady, John Litton, Betty Benitez and their staffs.

Fourth, the flair, style and showmanship with which each phase of the festival has been presented.

Fifth, and perhaps most important, the warm, friendly, gracious hospitality of the Filipino people themselves.

In its first time out, the Manila International Film Festival has achieved the impossible. It has set a standard which other international film festivals (including those which have been at it for decades) will be hard pressed to equal.

I leave Manila with a certain sadness, a certain reluctance to break the spell.

But in the words of General Douglas MacArthur, spoken in an entirely different context, but on this same soil, "I shall return!" ■

COLLECTIBLES

BACK ISSUES American Cinematographer for sale: "Star Trek", February 1980; "Empire Strikes Back", June, 1980; "Alien", August, 1979; "Shining", August, 1980; "Shogun", September, 1980; 3-D Special, April, 1974; "Clash of the Titans", June 1981; "Lone Ranger", July 1981.—Send \$5 per issue to AMERICAN CINEMATOGRAPHER, P.O. Box 2230, Hollywood, CA 90028.

MIFF
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During the Closing Ceremony, the coveted Golden Eagle Awards were presented to the winners on the stage of the Film Center by President Marcos. (BELOW) The President hands the beautiful Award trophy to Lyudmila Gurchenko, judged "Best Actress" for her starring role in *THE BELOVED WOMAN OF MECHANIC GAVRILOV* (USSR).



Following the Awards ceremony, a jubilant Bruno Lawrence, who won the "Best Actor" award for his powerful performance in the New Zealand feature, *SMASH PALACE*, holds the beautiful Golden Eagle trophy over his head. In foreground left is American director Delbert Mann, a member of the Jury. In foreground right is Roger Donaldson, writer/producer/director of *SMASH PALACE*.



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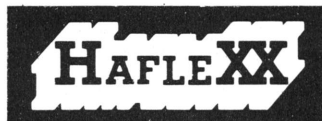
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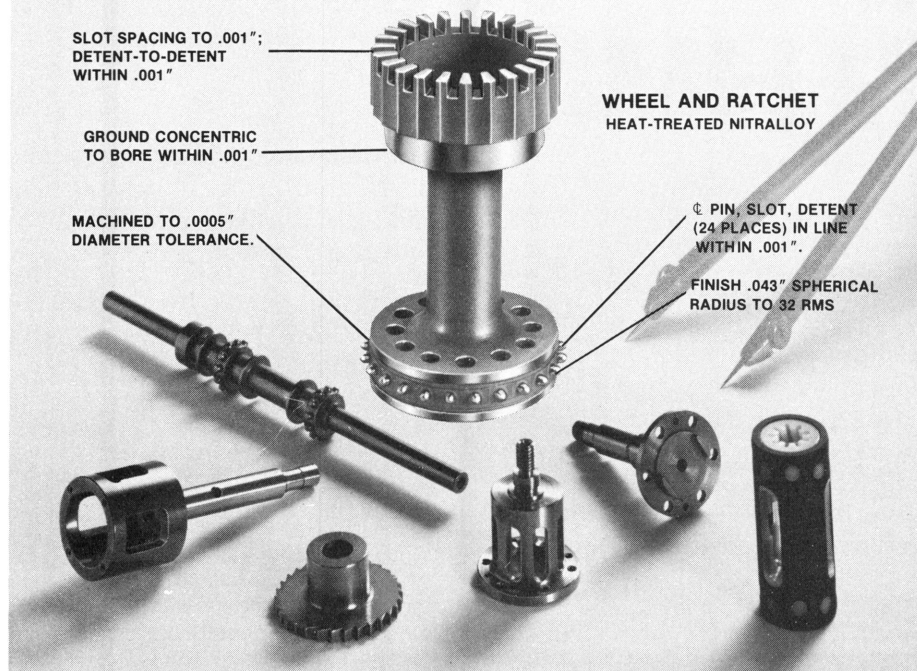
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PHOTOGRAPHING "THE SOLDIER" IN ALL KINDS OF WEATHER

Continued from Page 371

cameras. We are using higher f-stops and the 16mm Kodak stock, by its very technical nature, is a much sharper-looking film, but that sharpness will inevitably soften a bit in the blow-up. The low contrast filters should help take the hard edge off the contrast of the 16mm Kodak stock and make it match better with our 35mm Fuji stock—though more manipulation may be necessary during the blow-up phase in the lab. Anyway, we feel that these two things we are doing will help us blend the hard look of the Kodak film with the soft, pastel characteristics of the Fuji film. We are also counting on the fact that the action in this sequence will be so exciting and done with so many cuts that people in the audience are not going to notice the difference. That's our big hope.

EXPOSING FOR SNOW

In most cases, when shooting beach scenes or water scenes or snow scenes, where there is a tremendous reflective surface like a snow-covered field, your stop increases. You have to allow for that in your exposure. I over-rate the film by about a third or a half-stop. This is just a rule of thumb, but when you get into the woods or anyplace unusual like that you have to use your own judgment. If you are in a super-white place you have to allow for that in calculating your exposure.

When I have multiple cameras—as I have on this snow/action sequence—I have to come up with numbers to give each camera operator so that he can set his exposure. I can't simply say, "Shoot it at T/5.6." I have to give them one number, which is a guide number that they can use to figure out what they will do. Some of their cameras are high-speed cameras, so I give them a guide number based on what I have read and they individually figure out their own stops, based on their shooting speed, their lenses, what filtration they are using, etc.

I've noticed, when going up on the *Vallugabahn* cable car on bright days, that there is the most ideal light imaginable. It's like having the biggest soft light in the world bouncing up from all that white. It's gorgeous light. With Fuji film and that kind of light you've got to have a very beautiful picture. There's no way to get a bad photograph in that light.

COLD IS THE ENEMY

The one real hazard to snow filming is that when it snows, it's cold. We are using Panavision camera equipment here, which is terrific. It has integral heaters and heater barneys—I mean, they thought of

everything when they built that equipment. We also have some Arriflex equipment. Joe Jay Jalbert has winterized all his equipment, so that it runs with no grease.

The real problem is that you get a lot less battery life in extreme cold. Everybody is wearing their battery belts next to their bodies to help. We are also trying to arrange our locations so that we will be close enough to a restaurant or other warm place, so that we can have batteries constantly on charge. We have a lot of batteries and we change them often.

We are prepared to "siamese" battery belts if we have to. We have batteries that run when it's seriously cold—at -10° or -12° Celsius—and we find that when we hook two 12-volt belts together, we pick up more power from the same batteries. I am also making siamese rigs for my 36-volt batteries, so that I can hook two of those together for the high-speed shooting.

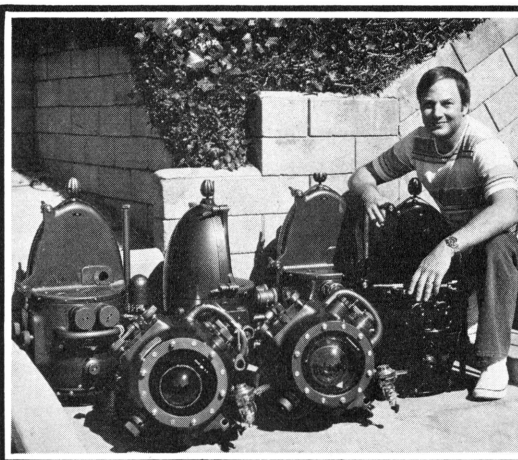
Another problem in cold weather has to do with film storage and film loading. Cold makes film very brittle, but because Fuji stock has a much thicker base than Kodak stock it seems to work better in the cold. It seems to be much easier to load; it threads into the camera better. The gates of our Panavision cameras are all gapped for Fuji stock and that is helping us in this cold weather. But, in any case, we are spending 10 to 15 minutes running each camera empty to warm up the gears, the grease and what have you. We are overcoming the problem. Battery life is still short, but the cameras are running great.

THE CHOICE OF LENSES

I've always had the idea that a long lens is exciting and a wide-angle lens isn't—but that doesn't always hold true. A wide lens skied close to a rock or grove of trees is pretty exciting on the screen. A wide lens that is mounted right beside a ski boot watching the ski go through the snow is also exciting. In this picture, because of so much skiing with a hand-held camera, we are mostly going to try to stay wide. About the longest lens that you can hand-hold while skiing is a 35mm. Beyond that the effect gets a bit nauseous.

There is a scene in which a snow-cat is coming up a road and a skier is coming down. What I'd love to use in shooting that is a 50mm or 75mm lens. I think the effect would be wonderful, but obviously we can't do that, because you can't hand-hold a lens that long without making the viewer sick to his stomach. So we're going to shoot it with the 35mm and try to get the excitement out of getting closer to the snow-cat.

Generally, this will be our method of op-
Continued on Page 394



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"THE SOLDIER" ON LOCATION Continued from Page 365

THE SOLDIER is an action-adventure suspense thriller for Avco Embassy release. It is the brainchild of 31-year-old writer-director James Glickenhaus, who scored with his second feature, THE EXTERMINATOR, the 1980 boxoffice hit about a man who takes the law into his own hands against New York criminals.

The Director of Photography for THE SOLDIER is Robert Baldwin who also photographed THE EXTERMINATOR for Glickenhaus. Upon being introduced to him, I find him to be a most genial man who, after 30 years behind the camera, seems undismayed by any cinematographic challenge.

The company has already completed shooting in Buffalo, New York City, Philadelphia, West Berlin and Israel. The exciting action to be filmed here in the Tyrolean Alps constitutes the last major sequence, and it reads in the script like something straight out of a James Bond movie—but minus the tongue-in-cheek wit and most of the gimmickry.

Skiing with a hand-held Arriflex, more or less pioneered by Joe Jay Jalbert in DOWNHILL RACER, is used to good advantage in THE SOLDIER.



THE DRIVING FORCE

I had been briefed to some extent on the background of writer-director Jim Glickenhaus before meeting him. I knew, for example, that he was a native New Yorker who had been a film buff as far back as he could remember. As a high school senior he had made films for his class project and then studied film, sculpture and history at the University of California Santa Barbara, Antioch College, and Sarah Lawrence, where he received his B.A. degree.

After graduation he made educational, documentary and industrial films in New York. At the age of 26 he felt that he was ready to tackle a feature film, so he wrote a science-fiction/horror script, called it THE ASTROLOGER, budgeted it at \$60,000, shot for 92 days, ran over budget to a total of \$132,000 (of his own trust fund money) and ended up with a picture that nobody wanted to buy or release. Undaunted, he distributed the film himself, area by area, and eventually made back his production cost, although very little profit. But he learned a lot about filmmaking—especially what *not* to do.

He applied this knowledge well to his second feature, THE EXTERMINATOR, filmed from his own admittedly "very commercial" script and financed by \$2 million of family money (when he was unable to get outside financing). He rushed the film to completion barely in time for showing at the Cannes Film Festival, but on the basis of one packed-house screening at the Olympia Theatre he racked up \$2,600,000 in foreign market pre-sales.

Back in the U.S.A. he showed the film to all the majors, seeking a domestic release. Universal was interested, but finally turned it down as being a shade too violent. Columbia liked it, but offered a deal that Glickenhaus felt was not good enough. Avco Embassy loved the film and, on a hand-shake deal, rushed it into 125 theaters, where it broke boxoffice records.

As a result of the success of THE EXTERMINATOR, Glickenhaus had no trouble getting Avco Embassy to finance production of THE SOLDIER to the tune of \$6 million.

When I meet him here in St. Anton I am startled by the fact that, while he is 31 years old, he looks to be about 10 years younger. But this doesn't prevent me from perceiving that he is possessed of a razor-sharp intelligence, a keen sense of cinema (from the audience standpoint), a genuine love for film and a driving determination to get what he wants on the screen against all odds. These are precisely the same characteristics I perceived in the early Francis Ford Coppola, George Lucas, Steven Spielberg and Peter

Bogdanovich.

He is also possessed of a disarming honesty. "I must admit that when I made my first feature, THE ASTROLOGER, I really had very little idea as to what I was doing. I thought I knew, but I really didn't," he tells me. "THE ASTROLOGER was a pretty awful movie . . . It was way too intellectual—somewhat incomprehensible, to be honest with you . . . but the experience of making the film, following it through post-production having original music scored, working with the labs, cutting TV spots, going to meetings with theater owners . . . all of that was invaluable. I really got quite an education on how films are made."

NOT BOUND TO BOND

Prior to my arrival here in Austria, the Jalbert office had sent me the pages of the script to be shot in this location. The action sounded for all the world like a classic chase sequence out of a James Bond film—which certainly isn't bad—but I ask Jim if that was what he had in mind when he wrote it.

"You always try to find something new," he replies, "but that's really hard to do. There have been a lot of really wonderful films made and all of the plots have been gone through a thousand times. So I don't think it's necessary that you find something that's unique in the world. What's important is to do well whatever you decide upon—or to do it a bit differently—even if it's something that's been done before."

"But to answer your question, I'd say that the film is basically a spy thriller. I would conceptualize it as a 'hard' James Bond film in that the James Bond films (except for the last one, which I think was more in the direction of the film I'm trying to make) have become almost comic-bookish. They're wonderful films and I love them, but I personally like the earlier ones a little better—such as DR. NO or FROM RUSSIAN WITH LOVE. I feel that they had a little bit more of the flavor of Fleming. I had also wanted to make a film that had something of the style of John LeCarré's writings, because his characters are very interesting to me. It's sort of like: the American spy is the American spy and the Russian spy is the Russian spy—but had the American spy been born in Russia, he would have been the Russian spy—and vice versa. In other words, it's that they love the game for the sake of the game."

"The plot of our film is simply this: there is an action which, at face value, appears to be a terrorist action, but the audience and the hero of the film (identified only as "The Soldier") know that it's not a terrorist action; it's the Russians *pretending* to be



(LEFT) Like a cluster of happy Popsicles, crew members pose for their picture in an ice cave. (RIGHT) Jim Glickenhaus (looking a little “horny” in this picture) noodles with his guitar while waiting for weather in the Galzig restaurant halfway up the mountain. (BELOW LEFT) Whiling away the down time, Kim and Joe Jay raise their voices in harmony that’s too close for comfort. (CENTER) The villain of the piece, famed international star Klaus Kinski, better known to American film fans as father of the gorgeous Nastassia. (RIGHT) All signals are “GO”, so it’s up the tram with the camera.



terrorists. We see a group of them hijacking a plutonium shipment. They jacket the plutonium in conventional weapons and threaten to blow up the oil fields in Saudi Arabia—which would irradiate 50% of the petroleum in the world and change things quite radically. The Soldier carries out his own unauthorized and highly dangerous plan to preserve the delicate balance of power. He is being chased by everyone and at the end he gets together some of his friends, a *la* THE DIRTY DOZEN, commandeers a missile silo in Smith Center, Kansas and effectively confronts the Russians by saying, ‘If you explode the bomb in Saudi Arabia, I’m personally going to blow up Moscow.’”

A MODUS OPERANDI

THE SOLDIER is Jim’s third feature, and he has obviously learned a lot from making the first two. I ask him what meth-

ods he has adopted for working with his crew, based on the knowledge he had gained.

“Mainly I’ve found, in working with technicians, that people will really come up with things that will help your movie—if you’ll let them,” he says. “I think that for me to tell a cinematographer—beyond describing how I ‘see’ the movie on the screen—exactly what lens to use or how he should move the camera would be ridiculous. If I have an incredibly strong opinion about a certain scene, we will perhaps shoot it two different ways, but I’ve found that if you let people go for it, they will often come up with things that you just didn’t know about.

“For example, let’s take the skiing sequences that we’ll be shooting here. Joe Jay Jalbert and his unit have photographed a lot more skiing footage than I have, so for me to tell him that he should

mount the 35mm camera on his ski and go off the lip of some jump would be crazy. He knows what will work and what won’t work. What I attempt to do is see a lot of the stuff that he’s done (which I have) and then express to him the things that I like and the look I’m going for in the context of the film.

“What has to be considered is that Jalbert, in his other areas of work, might make movies for a different reason than I do. He might be making a film about skiing for skiers, or a commercial—but you can never forget, when you are making a feature, that the purpose of the feature is not just to show spectacular ski footage. It has to be part of the story. If you can make a spectacular stunt have a reason for being in your film, it’s four times as powerful as having the stunt there just for the sake of a stunt. So I really try to integrate a stunt into the story so that it has a reason for being—

Continued on Page 400



LOCATION VIDEO: Do It Right!

By **ANDREW MAISNER**
President, American Film Factory

Andrew Maisner's American Film Factory is a state-of-the-art video production and post-production facility in Marina del Rey, California. Mr. Maisner was instrumental in the design and construction of the studio as well as the two mobile video trucks.

If there is a chance that you may be involved in doing a production on videotape in the near future, reading this article can save you big dollars and even bigger headaches. All too often film people making a change-over into video come away from their projects saying, "Never again." I felt the same way myself four years ago. I loved film; and, when I tried shooting on videotape, I felt I was battling the technology rather than concentrating my creative juices on production.

My staff engineers, Greg Thomas, Ron Buchwald, and I set out to rectify some of these problems with the design of our two new video trucks. Our goals were:

- 1) Total reliability
- 2) Unsurpassed picture quality
- 3) Flexibility

If man can make it, man can break it. That means the only sure way to have "to-

tal" reliability is to have back-up systems for anything on your video shoot. Our newest truck incorporates an elaborate system of patch bays in order to make near instantaneous change-overs to the back-up systems. This patch bay (much like a telephone switchboard) gives us the further advantage of easily routing video and audio signals wherever they may be needed.

Unsurpassed picture quality can only be achieved through the following:

- 1) Top grade equipment
- 2) Top grade engineers
- 3) Top grade lighting, camera and sound personnel

Let me discuss each category one by one. If I were to evaluate a truck, I would first look at its physical appearance. Is the truck clean; are there dents; does the interior need dusting? If the owner of the truck cannot keep it hospital clean, he probably isn't maintaining the electronics either.

Cameras

Ask the truck owner how old his cameras are, how much they cost, and what kind of lenses he uses. If they are over

three years old or cost less than \$40,000, you are not getting state-of-the-art equipment. The camera should have the following features:

- 1) 3 tubes (Plumbicon or Saticon)
- 2) Prism optics
- 3) Automatic beam optimization
- 4) Bias light
- 5) Resolution of at least 550 lines
- 6) A signal-to-noise ratio of better than 52 dB

All top of the line broadcast cameras use three tubes to capture the red, blue, and green components of a picture. The light comes through the lens and then is divided into red, blue and green by a prism. Cheaper cameras use dichroic filters to divide the colors. The dichroic filters absorb more than 1 stop of light. If you are shooting indoors or in low light, prism optics are a must.

Automatic Beam Optimization (ABO) is a sophisticated circuit incorporated in most of the top cameras which gives you four more stops of contrast range. This means you set the aperture so that the whites are not burnt out (blooming) and still have details in the shadows. Without



(LEFT) American Film Factory's $\frac{3}{4}$ ton mobile video van comes equipped with 3 Philips LDH 10 cameras, an ISI 902 special effects generator and a six channel Tapco 6201B audio mixing panel. (RIGHT) Their latest 26' mobile video truck has 3 Philips LDK 14 cameras, an American Data 558-1 special effects generator capable of chroma key and 100 different wipe patterns, a Yamaha 12 channel audio mixing panel, and a 6500 watt generator.

ABO you can forget about shooting backlit or high-contrast scenes.

Bias light is another feature found in most top-rated video cameras. This circuit can be compared to pre- or post-flashing film. In low light, it brings out the details in the darkest areas.

Good cameras have at least 550 lines resolution. Our Philips cameras have over 700 lines resolution. Signal-to-noise specifications are more important. Signal-to-noise ratio can best be explained by relating it to audio tape. On audio tape we have the program material and the tape hiss, i.e. noise. In video this "hiss" is viewable as snow or graininess. To make a picture with the least amount of noise (or grain) in it, camera manufacturers can go two routes. One way is to use expensive components that are inherently noise free. The cheaper way is to filter out the noise. The problem with filtering out the noise is that it lowers the bandwidth of the video signal thus resulting in lower resolution. Most Japanese manufacturers do this in order to keep costs down while maintaining high signal-to-noise ratios. They feel it's okay to sacrifice a little resolution. I don't!

Before we turn our attention to video recorders, let me emphasize the obvious. Make sure the cameras are mounted on high quality fluid heads (such as O'Connor). There seems to be a tendency in the video business to underate the importance of a good tripod head.

Video Recorders

In video recorders it's much simpler. Two inch wide video-tape used to be the standard for broadcast. One inch tape has replaced it because the quality is the same, the cost is lower, and one inch is easier to edit than two inch tape. Three-quarter inch tape is used mostly for industrial or educational shows. One inch tape is equal to 35mm film; $\frac{3}{4}$ " tape is equal to 16mm film; and Betamax or VHS is

equal to Super-8. Among the manufacturers of 1" video recorders are: Ampex, Sony, Hitachi, 3M/NEC and Bosch/Fernseh. Tapes made on Bosch/Fernseh video recorders are not compatible with any of the others. Bosch uses a format called type B. Ampex, Sony, Hitachi, and 3M/NEC use a format called type C. ABC, CBS and NBC have just about completed changing from 2" to 1" type C video recorders. Some people feel that the Bosch/Fernseh type B machine is the best, but do you want to fight CBS, ABC and NBC?

As far as which type C video recorder is the best, I couldn't say. We own 4 Ampex recorders, 1 Sony recorder and 4 3M/NEC recorders. Our personal experience is that the Ampex machines are the easiest to use, the Sony is the most reliable, and the 3M/NEC has the highest performance. I think they are all great, and the differences are inconsequential.

For multi-camera remote shoots high resolution monitors, a double re-entry switcher, a two channel communications system and a full array of testing equipment are essential.



Trucks

The simplest way to begin evaluating a mobile video truck is to address the following questions to the chief engineer (not the salesman) of the company from which you are planning to rent it. If the answer to any of these questions is no, I would suggest you look for another truck (assuming you are doing a multi-camera remote shoot).

1) Do you have at least a double re-entry switcher?

(Needed to do live dissolves and wipes.)

2) Do you have a high-resolution color program monitor?

(You've got to see what you are getting.)

3) Can you explain to me how you calibrate your monitor?

(It's aggravating to have monitors that don't match. How will you know which one is correct?)

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4) Do you have a waveform monitor and vectorscope?

(You can't calibrate and match the cameras without them. Do they have back-ups for these precious instruments?)

5) Do you have a time code generator?

(This device puts electronic edge numbers on your tapes. If you are using multiple recorders to record the different cameras, you must have one of these or your editing job will be horrendous.)

6) Do you have a time code character generator?

(This goody will allow you to make a 3/4" copy of your program as you shoot with hours, minutes, seconds and frames visible in the picture. It can save you money later on.)

7) What kind of communications system do you have?

(You do want to be able to talk to the cameramen, don't you? It better be two channel so that the sound engineer in the truck can talk to the boom man on one channel while the director and cameramen speak on the other channel.)

8) Can you mix the program audio into the communications system?

(I should think that the director and cameramen would like to hear what's being recorded while they have their headsets on. Also the boom man needs to hear program audio so he knows if he is on axis or not.)

9) What kind of mixing board do you have? Is it high level and balanced?

(Low level, unbalanced mixing boards are cheaper and are inherently noisier than high level balanced boards.)

10) Are there enough inputs to handle the number of microphones I need?

11) Do you have compressor/limiters or peak limiters?

(You need at least two of these in order to get good sound under many circumstances.)

12) What kind of microphones do you have?

(Let's hope they aren't from your local stereo shop. Look for the same names you use on your film shoots.)

13) Do you have a generator?

(If you're on a shoot where there is no power or not enough power to fire up the truck, this is a lifesaver.)

14) How much air-conditioning do you have?

(If you're shooting in the summer, make sure they can handle high ambient temperatures.)

15) Can I look at the inside of your equipment rack?

(If the wiring job looks like a spaghetti factory, find a new truck.)

This is by no means a complete list. We're just looking for red flags with this article.

Personnel

So far we've only spoken about hardware. Our newest, video truck cost over \$450,000 to build. It's just like a Ferrari: you can use it for a day or two, and then it needs a tune-up. When it's tuned, there is nothing on the road that can beat it. But let us go a week or so without our engineers going over every component, and we might as well be using home video cameras.

Ask to meet the engineer who will be responsible for making sure the truck you use will be in perfect working order. Does he look like he is drunk? Asleep? Uninterested? Cooperative? Does he understand all your requirements? Our video engineers make over \$50,000 per year. I won't settle for anything but the best. Should you?

Ask to see the video company's repair shop. Is it well organized, neat, clean? Now ask these questions:

- 1) Do you have an oscilloscope?
- 2) Do you have a volt meter?
- 3) Do you have a frequency counter?
- 4) Do you have a waveform generator?
- 5) Do you have a tentalometer?
- 6) Do you have a test signal generator?
- 7) Do you have a spare parts kit for your cameras and recorders?

If the answer is no to any of these questions, look for a new company. You need a shop behind you that is capable of repairing anything that can go wrong.

Unfortunately the best equipment and engineer won't guarantee a great shoot. You need a highly skilled dedicated crew. Any experienced producer who has assembled a crew for a shoot knows that much of the first day is wasted while the crew gets to know each other and while areas of responsibility are delegated. Time is also lost by the inevitable where-is-this syndrome. During the last three years we have spent over 400 days shooting on locations all over the world. Our crew performs like a precision drill team. When we arrive at a location, each man knows his duties and knows the equipment as well as the back of his hand. The team spirit and precise knowledge of the equipment save you time and money. I believe there are many other companies around the country with crews as well trained as ours. Why don't you give them a try. ■

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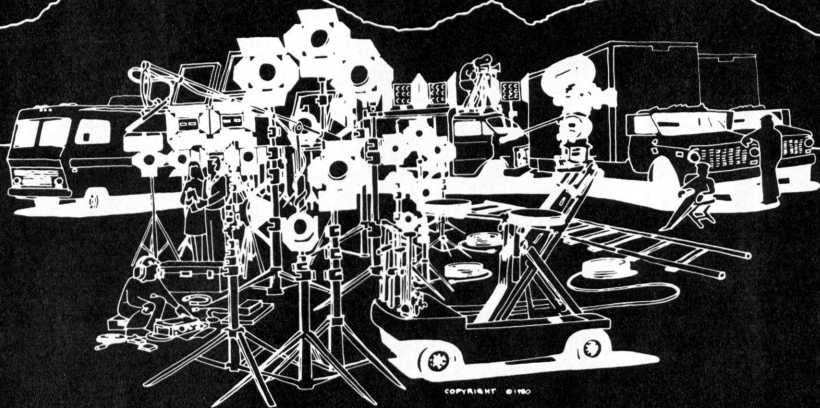
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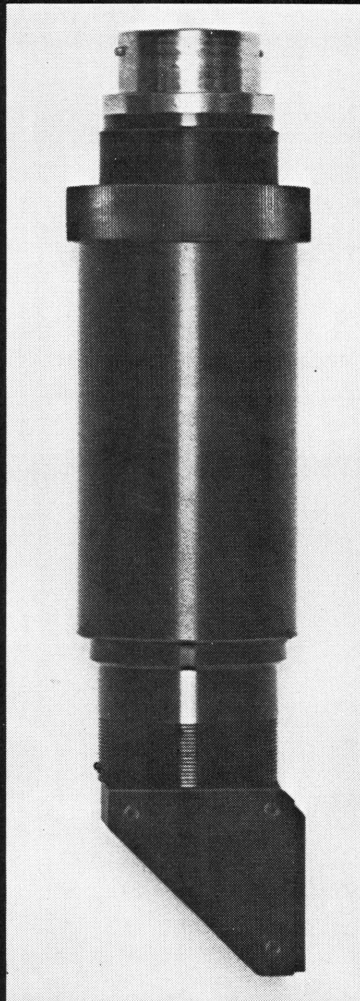
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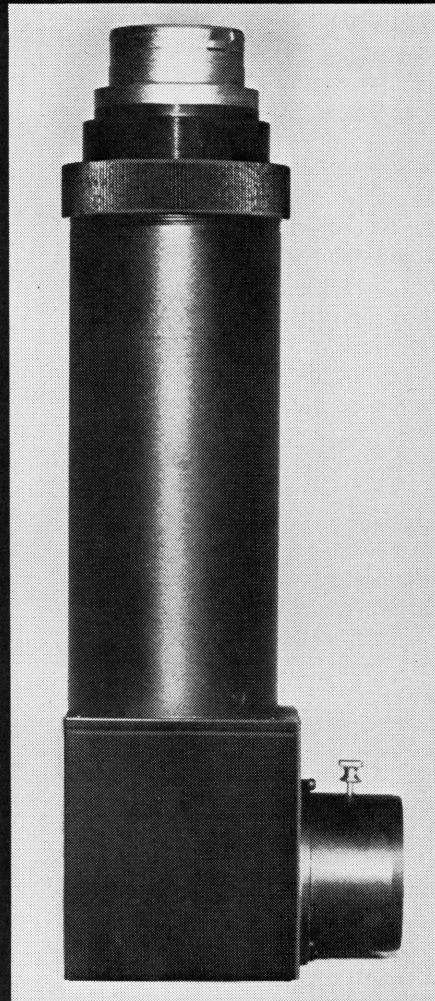
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VIDEO FORMATS

By BOB RINGER
RINGER VIDEO SERVICES

The RCA TR-800 1" videotape recorder is an example of a 1" type C VTR designed for editing. Shown here in a studio configuration, it can also be used in a transportable configuration without the monitor and scopes which weighs 175 pounds. It will accommodate a two hour reel of tape and has a built-in editor controlled by a microprocessor.

The filmmaker, approaching a video production for the first time, is faced with a choice of format similar to the choice he makes about whether to work in 70mm, 35mm, 16mm, or 8mm. He may also have to decide whether to combine formats and choose the one most suited for each phase of his work. As with film, many of the choices are dictated by the market for which the production is destined, and many are dictated by economic considerations. The more he understands the capabilities and limitations of each format, the better he will be able to get the best quality for his money and the most useful end product.

Video formats can be categorized according to the characteristics of the signal into which the visual image has been translated, by the way in which this signal is recorded, or by the physical characteristics of the medium onto which it is recorded. To some extent the size of the tape used for recording a video signal is an indication of the limitations of the quality of the image that can be recorded — in the same way that the gauge of a motion picture film is an indication of the limitations of the image which can be recorded photographically. One naturally assumes

that the image quality possible with 2" tape equipment is superior to that possible with $\frac{1}{2}$ " or $\frac{3}{4}$ " equipment. However, this is not true for 2" as opposed to 1" videotape, and the reason is that the physical size of the tape is not, per se, the limiting factor. With film, the physical area on which the image is recorded is a directly limiting factor for any given film emulsion, (you get more resolution in 35mm than you do in 16mm), but with video tape, as in sound recording, the limitations are more a function of the speed with which the tape moves across the recording head — or more precisely, the "bandwidth", or range of frequencies which can be recorded. Because of the difference in the design of 2" and 1" videotape recording machines, it is possible to achieve the same image quality with 1" as with 2", and 1" videotape is rapidly replacing 2" as the standard format for broadcast quality recording.

Tape Sizes

There are five different sizes of tape currently used for video recording. Two inch tape recorders were the first to be developed and were the industry standard until recently. One inch recorders, originally developed for non-broadcast use, are now capable of quality com-

parable to that of 2" machines and offer a variety of other advantages. Both 2" and 1" videotape recorders are reel-to-reel machines. The smaller tape formats generally use cassettes. Three-quarter-inch videotape was developed as a "consumer" product format and was not originally conceived as a medium for broadcast quality video recording. Advances in technology, however, have made it possible to achieve a quality on $\frac{3}{4}$ " cassettes which may, in many cases be considered acceptable for broadcast and which is certainly adequate for a wide range of non-broadcast professional uses. Half-inch videotape is primarily a format for home use and for home use distribution, but there are some professional applications, such as industrial production and certain off-line editing techniques. The latest tape format to be introduced is the Technicolor $\frac{1}{4}$ " cassette format. While it is essentially an amateur format at present, it may represent the possibility for future developments in more compact video formats.

In general, we can say that the use of $\frac{1}{4}$ " and $\frac{1}{2}$ " tape is roughly comparable to 8mm film; $\frac{3}{4}$ " tape to 16mm film; and 1" or 2" to 35mm film.

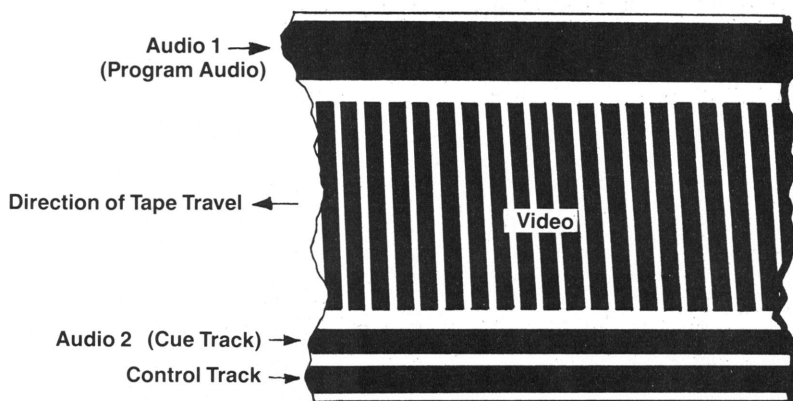
Recording Formats

Videotape formats are also distinguished by the way in which the signal is recorded on the tape or the way in which the tape and the record head move in relation to each other. Two-inch machines have four recording heads on a drum, rotating at 90 degrees to the direction of the tape travel, so that the track is recording across the width of the tape as it moves past the drum. This is called a quadruplex, or "quad" format, and it enables the heads to move in relation to the tape at a scanning speed (or writing speed) of 1560 inches per second, even though the tape is moving through the machine at a rate of only 15 inches per second.

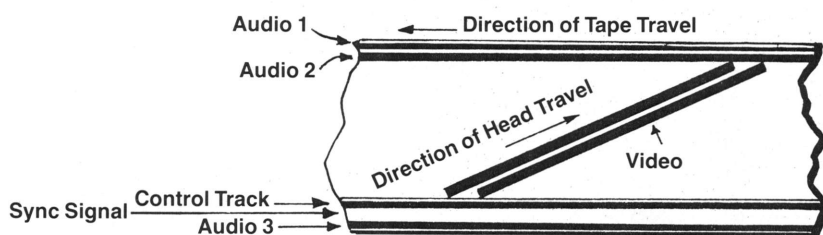
One-inch videotape recorders have a different configuration called "helical" in which the tape is wrapped around a drum containing a head which is rotating at a shallow angle to the general direction the tape is travelling. The tape is wrapped around the drum at a slight angle to the path of the head so that the track is recorded on the tape as a series of sloping adjacent tracks, each of which contains a complete field of the video image. In this type of 1" C tape machine, the tape moves through the machine at a rate of 9.61 inches per second, and the head is moving across the tape at a rate of 1007 inches per second.

There is another 1" format machine, and this is called type "B". In this format there are two video heads moving across the tape (as in the quad machine). One of these segmented heads is always in contact with the video tape allowing a continuous video signal. The 1" video tape moves through the machine at 9.65 inches per second, and the video head writing speed is 945 IPS.

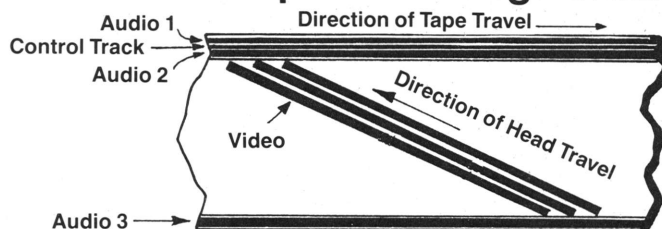
The Ampex AVR-3 is a 2" quad videotape recorder designed for production or post-production. It runs at either 7½ or 15 inches per second and can record 250 minutes on a reel. It is over 5 feet tall and weighs 1100 pounds.



2" Quadruplex Videotape Recording Format



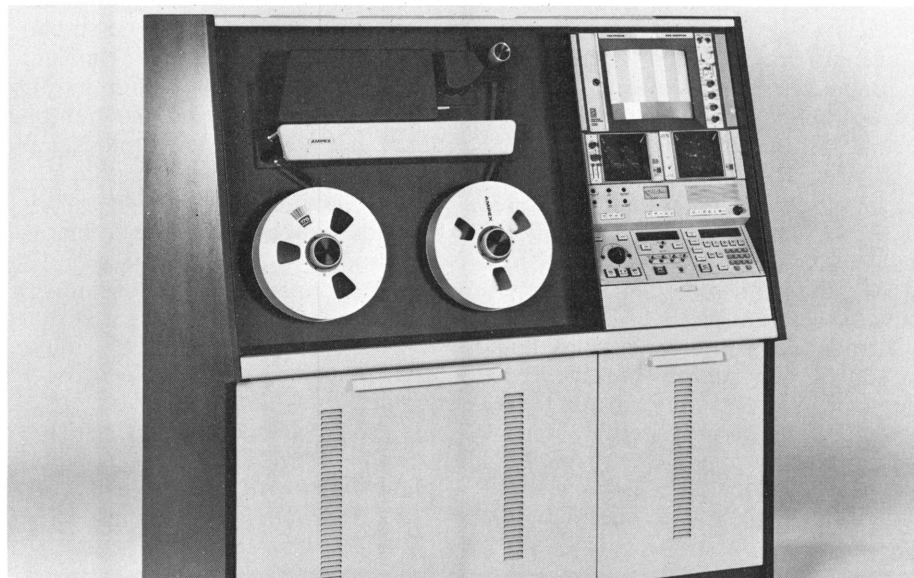
1" Type C Helical Videotape Recording Format



1" Type B Helical Videotape Recording Format

Heterodyne

Standard ¾" cassette recorders have a much slower tape speed (3.75 inches per second) and scanning speed (404 inches per second) and as a result are not capable of achieving the same degree of resolution as 1" or 2". The slower tape speed also necessitates a different method of processing the color elements of the signal, which is called "heterodyne" or "color under". On 2" Quad, 1" C and 1" B recordings, the color frequency is an integral part of the television signal being modulated. In other words, luminance (B&W) and chrominance (color) are recorded together in one encoded signal. In the "heterodyne" or "color under" recording, due to the limitations of the bandwidth, we cannot record the signal direct, but must record two signals of less bandwidth. This method has sev-





The Sony BVU-800 is a state-of-the-art 3/4" videotape recorder used for ENG production or for off-line editing. It will playback a color picture at up to ten times speed and a black and white picture at up to 40 times speed.

eral deficiencies. One is a noise or grain problem that shows up on a playback monitor. The other is a chrominance, luminance delay that gets more objectionable with each generation, and sometimes causes a "herring-bone" effect.

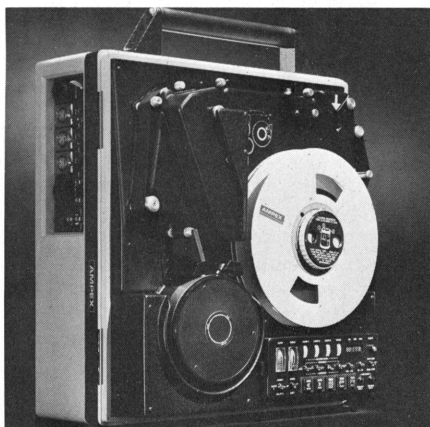
There is one 3/4" VTR available (the Recorder HBU conversion) which is designed to run three times faster than a conventional 3/4" machine (i.e. at 11.25 inches per second) and which has a scanning rate of 1212 inches per second. As a result the resolution of the image is as good as that obtainable with standard 1" machines. Of course, a cassette only plays for a third of its normal running time on such a machine.

Use of 3/4" Cassettes

Conventional 3/4" videotape is a professional medium even though it is not capable of the same image quality as 1" or 2". In this sense it may be compared to 16mm film, and the development of rugged, portable 3/4" recorders was one of the principal factors in the "Electronic News Gathering (ENG) Revolution". Three-quarter-inch tape is widely used for location news or documentary cinematography, and can yield perfectly acceptable images — particularly if it is transferred to 1" for editing at the studio.

Another professional use of 3/4" videotape is in "off-line" editing. Even if a production is shot in 1" or 1 1/2" videotape, it is often advisable to do the preliminary editing with 3/4" copies of the original tape. This is primarily because of the difference in cost and ease of operation between 3/4" and 1" or 2" equipment. In this way 3/4" cassettes made from larger format originals function as "workprints" for editing. Three-quarter-inch is also often used as a distribution format for productions shot in 1" or 2".

Another way of categorizing video formats, in addition to the size of the tape and the way in which the track is laid down on the tape, is the standard for determining the way in which the original optical image is scanned. There are four different standards for color television currently in use around the globe: NTSC, PAL, PAL-M and SECAM. NTSC is the standard used in the U.S., Canada, Mexico and Japan, to name a few. It consists of 525 horizontal lines and has essentially 30 frames per second. (There are actually 29.97 frames per second, but we need not concern ourselves with this discrepancy here.) The PAL and SECAM standards were both designed for countries having 50 cycle current, and as a result have 25 frames per second. They also differ from NTSC and from each other in the way in which the color signals are combined with the brightness signal. PAL stands for Phase Alternation Line, and is a color encoding system developed in Germany. It is used in 36 countries including West Germany, England, and Holland. SECAM stands for the French equivalent of Sequential Color with Memory. **The Ampex VPR-20 portable 1" type O recorder weighs 53 pounds and is about 18" tall. It will record 60 minutes on a 9" reel.**



and was developed in France. It is used in 20 countries including France, Russia and Eastern Europe. PAL-M is a modification of the PAL system for countries using 60 cycle current, and used in Brazil only. PAL and SECAM both have 625 horizontal lines and therefore offer better vertical resolution than NTSC or PAL-M. It is possible to convert a program from one standard to another by running the signal through a standards converter and re-recording it on a duplicate tape. This is a common practice now, and has made feasible the foreign distribution of programs produced originally on videotape.

There is a great deal of work being done now in the development of high definition television systems having over 1000 horizontal lines. The general consensus seems to be that a television system with 1100 horizontal lines would be capable of vertical resolution or sharpness comparable to 35mm film. There is a concern to find a standard which could be compatible in some way with existing 525 and 625 line standards, and the Japanese have done a great deal of work with a 1125 line system designed for a wide screen format.

All of the preceding analysis of video tape machines, 2", 1", 3/4", had to make the comparison based on the same camera looking at the same scene, feeding all format machines. In film production, there is remarkably little difference in the ability of cameras (with proper lighting) to make technically good pictures. Lenses, camera stock, and processing appear to be the only variables. The human factor is kept to a minimum in comparison to video pictures. The range of television cameras far exceeds anything available in film. As a general rule of thumb, the more expensive the camera, the better the picture quality. Conversely, the cheaper the camera, the lesser the quality. Prices of cameras run from \$90,000 for broadcast quality cameras, to \$595 for cheap amateur cameras. Lenses, age of the pickup tubes, proper balancing of the colors through an encoder, matching of two or more cameras by a video man, proper upkeep and maintenance of the supporting equipment are but a few of the factors that directly affect the quality of video pictures. More and more automation is going into the design of these cameras, where the variables will be less and less to worry about, but as of today, the producer should worry about the human factor involved in live video pictures. ■



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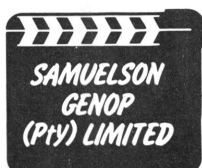
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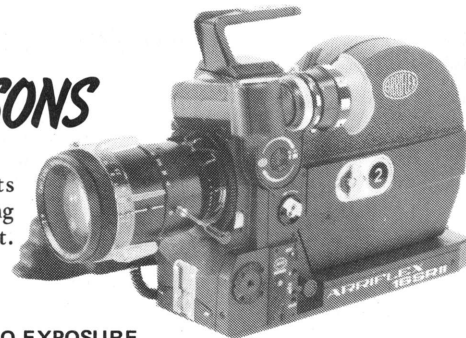


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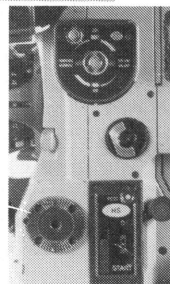
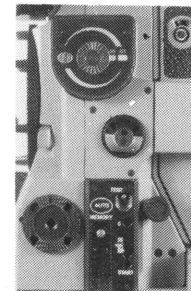
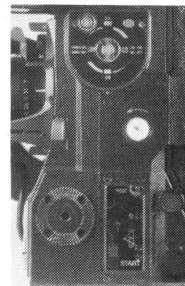
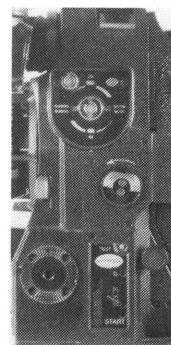
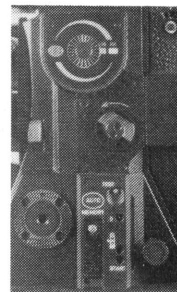
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REPORT ON THE NEW EASTMAN COLOR PRINT FILM

By JOHN WANER

*Motion Picture and Audiovisual Markets Div.
Eastman Kodak Company*

All about Eastman color print film 5384/7384, which retains original color values approximately 10 times longer, and what it means to you

A new color print film with vastly improved dye-stability characteristics will help make sure that the public sees motion pictures the way they are perceived by producers and directors and exposed by cinematographers. This should hold true whether the film is projected in a theater one month or 10 years after it is printed.

This development should go a long way toward meeting both the current needs and future expectations of filmmakers. Eastman color print film 5384/7384 is the culmination of many years of research and development efforts in the areas of dye stability, film lab productivity, ecology practices, and image quality.

The new stock will replace Eastman color print film 5381/7381, Eastman color SP print film 5383/7383, Eastman color LFSP print film 7379, and Eastman color LF print film 7378. The last two of these films offered superior cyan dye-keeping capabilities, and very stable colors. However, because of higher manufacturing costs, they carried a price premium of around 10 percent.

The new print film retains the best image-structure characteristics of 5381/7381 and 5383/7383, such as fine grain and sharpness. Because of substantial improvements in dye-keeping stability, it should be able to retain original color values approximately 10 times longer. This improves the long-life benefit which was previously available with the LF films, only now there is no price premium because technological advances in manufacturing have eliminated the need.

We believe that prints made on the new stock will be usable for generations before there is any detectable change in color, as long as film is processed under recommended conditions and not stored for long periods under extreme temperature and humidity conditions.

For cinematographers, there are other enhancements in addition to improved dye stability. There is slightly more blue in the skies, and slightly more yellow in grass and foliage. There is also slightly more saturation in yellows, and slightly more cyan in cyan-greens. All told, we believe that it will yield an image with slightly more realistic colors.

There are also significant benefits for labs inherent in the new print film and a modified process—ECP-2A—for handling it. The new print film has reduced sensitivity to process variations, and the

modified process provides more efficiency in chemical recycling. Because of less bromide release during development, more of the overflow can be reconstituted as color developer replenisher. There are also improved ecological considerations, since persulfate bleach is recommended for the new process, though ferricyanide bleach is still an acceptable alternate choice. In the long term, persulfate bleach is likely to become the worldwide standard.

An even more significant consideration for labs is reduced sensitivity to such process variations as temperature and certain chemical levels. This should improve both productivity and quality assurance. For example, we anticipate better timing correlation between answer prints and prints from full-length, one-light duplicate negatives since 5384 "sees" all pre-print materials essentially alike.

We have been working with technical societies and labs all over the world during the past several years to establish uniform standards and procedures involving the use of process ECP-2A. The goal is to be sure that every print made from the same master will look the same. This is becoming increasingly important with the emergence of broad global markets for entertainment and informational films.

At the same time, labs will have considerable leeway for customizing contrast of the final print to match the needs of the producer, as well as the wishes of the director and filmmaker. This will primarily be achieved by pre- and/or post-flashing the master positive, dupe negative, or print. Each of these procedures can reduce contrast by as much as 10 percent, so there is quite a bit of range available for customizing the final look of a print. There are also established techniques for increasing contrast through the effective use of color dupe masks.

Such techniques for manipulating contrast have been most widely used in Europe, particularly England. However, we anticipate that more labs in the United States will aggressively offer these custom services. There is also increasing awareness that the same print doesn't always satisfy all needs. For example, many people now feel that a lower contrast print will yield a better video image. So, for the same motion picture, higher contrast prints might be ordered for theatrical release, and lower contrast prints for television.

REVIEW OF RECENT PRINT FILMS AND PROCESSES

To put the print film situation in context, it may be useful to review some of the recent history that led up to the introduction of the new print film and modified process. The roots go back to the introduction of Eastman color print film 5381 and process ECP. These products were announced in April 1950. The original process required approximately 45 minutes of wet time with all chemical solutions and washes operating at a recommended 70 degrees Fahrenheit temperature.

During the following years, there were a number of improvements in both the emulsion and process. In fact, research and development is an ongoing procedure with every film product or process until it is no longer needed.

By the mid-1960s, it was clear that the most pressing need that the labs had was for a faster process time, which would allow them to increase productivity. This reflected a substantial growth in the print film market, brought about in part by a changing strategy for distributing features to theaters. Producers began ordering 300, 400, 500 and more release prints at a time. An order for 1,000 or more prints wasn't uncommon.

In some cases, labs opted not to wait for technology to catch up. They sped up the process by raising the temperature level of solutions. Most of the time, this practice didn't cause problems, though occasionally we saw an effect which we called reticulation. In these cases, the higher temperature literally baked the emulsion, causing small cracks which showed up on the screen as a diffusion of light.

We targeted on making improvements in the print stock and process designed to maintain high-quality standards while fulfilling the demand for higher productivity. By 1966, wet process time was reduced to 28 minutes with a recommended 75 degrees Fahrenheit temperature. The following year, process time was trimmed to 20 minutes with a recommended 80 degrees Fahrenheit temperature.

In addition to helping the labs increase productivity, the faster process time gave them a much quicker look at the first print. This occasionally paid real dividends, since problems could be spotted quicker, substantially reducing wasted time and materials.

By then, there was a clearly established trend toward lab automation, calling for

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the use of faster and smaller machines, which maximized the use of space and time and permitted most cost-effective use of labor. Accordingly, in 1974, we introduced Eastman color print film 5383/7383 along with the process ECP-2. This was done in conjunction with the introduction of Eastman color negative II film 5247/7247.

The new print film and process trimmed wet time to around 10 minutes. It required an increased developer temperature of 98 degrees Fahrenheit, though all other solutions and wash were heated to only 80 degrees Fahrenheit. The latter was important because it conserved energy use at a time when the cost of power was spiraling. Since the new process was shorter, less machine space was required, allowing more efficient use of facilities along with an anticipated reduction in maintenance costs. There were also savings in reduced water requirements, and in more efficient recycling of chemicals and recovery of silver.

Nevertheless, some labs felt that they had modified process ECP to a point where they couldn't see a sufficient benefit in investing in new machines, or modifying existing equipment for the new film and process. The result was that some labs chose to keep running process ECP and release printing on the 5381/7381 stock, while others were using process ECP-2 and release printing on the 5383/7383 stock. In addition, other film manufacturers were (and still are) providing labs with print stocks compatible with both of these processes.

Initially, the print stocks of the two Eastman films were reported to be producing like results. The only difference was in the way they were processed, and that wasn't a concern for filmmakers.

Later on, we had to modify our manufacturing procedures in order to satisfy changing environmental regulations. The result was that there was a brief period when there was a slight differential between the two print films.

The difference was very difficult to pinpoint because it was so slight, it wasn't universal, and it was linked to the range of exposure in the original negative. What it came down to was that if you "pushed" the latitude of the negative during exposure to its fullest range, under certain conditions, shadow details at the low end of the scale tended to block in when the newer print film was used.

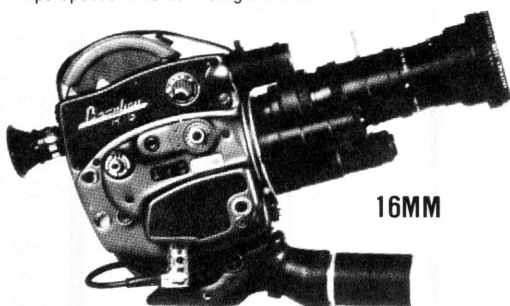
This led to a considerable investment in development and manufacturing costs, which resulted in a convergence of the screen appearance of the two print films. I believe that today, anyone would be hard-pressed to distinguish a print from the

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In 1978, our research involving the stability of color dyes began to pay dividends, leading to the manufacture of two new Eastman color print films with improved cyan dye dark-keeping stability. Eastman color LF print film 7378 was identical in all other characteristics to 7381, and it was designed for process ECP. Eastman color LFSP print film 7379 was identical in all other characteristics to Eastman color print film 7383, and it was designed for process ECP-2.

Despite having built what we considered to be a better mousetrap, the world did not beat a path to our door. The most significant response came from Encyclopedia Britannica Educational Corporation, one of the largest educational film distributors. Since many of the prints in its library are recycled for years, even decades, it saw a potential for long-term cost-savings. In 1980, this company started making all new color release prints on the new LF stock.

Though there were concerns voiced by some people in the entertainment film industry about a potential long-term color-fading problem, there was very little interest in the more stable LF films because of the price premium. It was difficult for us to argue with the logic of producers and distributors making this decision, since most prints made for theatrical release are cost-justified and worn out from use long before the color dyes would be expected to fade, even under the worst of conditions. Their reasoning was that the color integrity of films is stored on the original and intermediate stocks, as well as silver separations, in some cases. The only exception that I can think of is Academy Award winning cinematographer Vittorio Storaro, who had a contractual clause requiring the distribution of one of his motion pictures on LF print film.

Of course, all of this should become history soon with the introduction of Eastman color print film 5384/7384 and process ECP-2A. With these products, every print will work harder to preserve the heritage of the industry. In summary, I believe that some giant forward steps have been taken on a number of fronts at the same time. The labs are going to benefit, and so are filmmakers. And you can believe that we don't intend to stop here. While these are a considerably better print film and process, they aren't our last words on this topic. ■

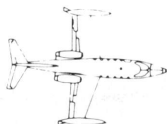
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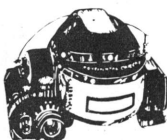


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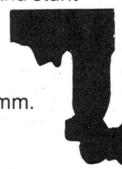
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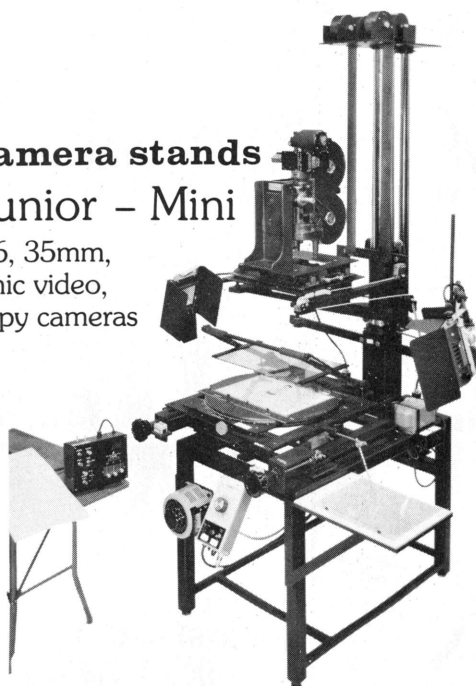
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PHOTOGRAPHING "THE SOLDIER" IN ALL KINDS OF WEATHER

Continued from Page 379

eration in the snow. But we will be using longer lenses—600mm or 1000mm—from across the valley to shoot skiers coming down through the moguls. This, again, depends on the light. We will try to get a strong side light that throws definite shadows of those moguls. The flattening characteristic of the long lens, played against the shadows of the moguls, should make for an interesting graphic. We are interested in shooting back-lit powder snow, which can produce some incredible footage. To see a skier come over a hill and make a turn in powder snow, kicking up a huge plume of powder that is all back-lit, is gorgeous to watch. There is flare in the lens and some may feel that this is a corny or cliché shot, but on a big screen it's exciting footage.

MOTION AND SLOW MOTION

We are shooting some high-speed cameras, but I'm trying to use slow motion sparingly, as a cutaway. I don't think it's the way to sell a movie. There are times, of course, when high-speed is great. For example, we have a scene in which a guy skis off a cliff. He jumps over a snow-cat and lands 150 feet down the mountain. I think that high-speed is wonderful for that kind of thing, because the guy appears to stay in the air forever.

When we shot *THE EXTERMINATOR* a guy got air-rammed off a cliff and fell 75 feet into an air bag. I shot five cameras on him—two of them high-speed—and we cut back and forth from the real fall to the high-speed to the real fall to the high-speed, and it seemed that he stayed in the air for two minutes. He didn't, of course, but it seemed like an awfully long time and it was beautiful. If you can do that with high-speed then I think it's a wonderful thing, but it can be over-used too. I don't think you have to do every stunt in high-speed. I will probably shoot all of them with one high-speed camera, just to have such footage, but if it's cut into every stunt the audience will go "ho-hum" after a while. A skier coming off a hill and floating down to a place on the snow 100 feet away, where he goes on skiing, will make a beautiful shot. But once you've seen a guy falling slowly through the air that's enough for one picture.

Some of our cameras will be shooting the ski action at 32 frames. Now, 32 frames is not slow motion, but it's just enough to take the jerkiness out of certain types of action and allow the audience to see it more clearly. For example, if a horse makes a turn and changes leads, you can't see that at 24 frames (unless you

happen to be a horseman), but you can really see it at 32 frames, and yet the horse hasn't been slowed down at all. The amount of slowing down is imperceptible, but it creates such a beautiful floating kind of feeling, without your mind saying: "Wow! That's slow motion." Instead your mind just says: "I can see what he's doing."

The same holds true for skiing. If a skier makes a turn at 32 frames he's not doing it in slow motion, but you can see what his ski does in the snow. It just becomes a pretty picture. A skier moves pretty darned fast and at 24 frames he really is through the shot before you can see anything. Shooting at 32 frames you slow him just enough so that you can see what he's doing. You can see his legs move and his skis move, but you don't get the feeling that you're watching slow motion. It's a nice way of shooting ski action.

DIRECTOR-CINEMATOGRAPHER RAPPORT

Because Jim Glickenhaus and I have worked together before (on *THE EXTERMINATOR*), we've developed a smooth working rapport. For *THE SOLDIER* Jim and I talked a lot in the pre-production phase about what the picture should look like and how to get the effects he wants.

He is the kind of director who tells me what he wants, what it should look like and what feelings he wants it to convey, and then he pretty much leaves it up to me to get it for him. So far, we're a pretty good team.

I've worked with directors who call lenses, call camera positions, call moves, everything. Jim doesn't do that. Once in a great while, if something is very important to him, he'll ask that it be shot in a quite specific way. That's okay. He's the director. But normally he leaves it up to me. We talk in terms of feelings, of end result. We talk in terms of the audience. Then it's up to me—with lenses, camera moves and so on—to make it happen, and so far we've really been good at it.

We've spent a lot of time together talking about the skiing sequences. Jim is a skier, so he's going out with the second unit, with Joe Jay Jalbert's crew, and he's directing them one-on-one. I'm not a skier, so I'm not out there with them. But I talk with them every night and they go out and shoot what we've decided on; they shoot it with Jim.

The working rapport that Jim and I have developed has had some interesting results. For example, we had an accident on this picture and we rewrote the sequence on the spot to include the accident in the story. He and I rewrote that se-

quence in about 12 minutes and it turned out very well. I think that kind of communication between a director and his cinematographer is incredible. That's what it's all about. Filmmaking is a collaborative art and no one man is an expert in everything. Jim is smart enough to know that there are people with expertise in every field and he draws from every department. He puts it all together and what comes out is a pretty darned good picture.

I think a lot of Jim Glickenhaus; he's a terrific guy. *THE SOLDIER* is his third feature and he learns on every picture. His first one didn't do very well, but *THE EXTERMINATOR* did very, very well. He wrote and directed it and I shot it. He is a guy who is out to make a "movie," not a picture that will end all pictures. He is trying to make a good picture that will sell. He puts good people together to make it and he puts out good products.

He is a loyal man. A lot of the people who are on this picture were on his last picture—and some of them were on his first picture. He knows the film medium and he knows how to use it. He is the kind of guy who listens. He takes in everybody's input and then comes up with a decision. If it turns out to be a wrong decision, he admits it and tries again. It's a pleasure to work with him. ■

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PHOTOGRAPHING "TAPS"

Continued from Page 353

time it would rain or go heavily overcast and we couldn't shoot something that required sunshine, we'd shoot a piece of the funeral.

Very often we had very difficult matching problems, because we'd shoot one section of a sequence in sunlight and then the sun would drop out. We might not get back to that sequence for two weeks in order to shoot another piece of it. We'd shoot little pieces all the time, just so we'd get longer shooting days in.

We shot absolutely nothing at early morning, or sunrise. In order to plan the shooting of a sunrise sequence, there would have to be an extremely early call. We'd have to get there very, very early in the morning. But the weather was so unpredictable that if the sun didn't come up there could be a considerable economic loss. Instead, anything that had to be filmed very early in the morning—like the flag-raising ceremonies—we

would shoot at dusk. It was easier, at the end of the day, when the sun ran out for our regular shooting, to set up for what we called "an early morning shoot," and we'd work as the sun went down, shooting pieces of that sequence each day. In this way, if we lost the sun for our regular shooting at 4 o'clock, we could line up for our "early morning" sequence and shoot a piece of it without wasting any time. It was just an economically more sound way to do it, and I don't think anybody can tell whether it's sunrise or sunset on the screen.

I treated the sets built inside the field house pretty much as I would treat them on a studio sound stage, which meant that I could use whatever size of lighting units I wanted. However, I did use 10Ks rather than arcs. I avoided using arcs because there was no way to ventilate the smoke from the field house. That's the one thing it didn't have that a sound stage might have—a ventilation system.

We used overhead soft light for ambient light quite often, and I lit through windows

the same as I would do on a practical interior. So there were times when I would combine studio and location lighting techniques. I had the flexibility to go either way, depending upon the situation.

We used HMI lights outside, but not on the stage. Actually, I did very little lighting on the exteriors, the aim being to keep the lighting just as natural as possible. I used a lot of white bounce reflectors to fill in shadows whenever possible. But I very rarely used any lights outdoors, except for scenes under the tents—like when the parents come and meet underneath the tent, or the other sequence with Ronny Cox and Timothy Hutton in the rain. There I had to use quite a bit of HMI light in order to be able to bounce sufficient light underneath the tent.

We used the crane quite a bit in photographing TAPS because we had a lot of high-angle shots. The school is situated slightly up on a hill and sometimes, in order to shoot from outside to inside, we would have to get up fairly high in order to be able to look down onto



(LEFT) The original lighting plan was to keep the lighting soft in the early sequences, while having it get more stark as the drama mounted. In this dorm sequence early in the film the lighting is relatively soft. (RIGHT) Later, when the academy is under siege, the lighting in the same room is much more stark and contrasty. (BOTTOM LEFT and RIGHT) Sets such as these were built inside a huge field house on campus. Since there were great rafters and catwalks, it was just like shooting in the studio.





(LEFT) The Steadicam was used for reasons of practicality, because there were vehicles crossing where dolly tracks would ordinarily be. Garrett Brown, shown here loping along beside a tank, operated the Steadicam, which is his invention. During filming of the battle sequence he had to wear a gas mask while operating the device. (RIGHT) A light moment for animal lovers between set-ups.



the street. As far as the moving camera was concerned, the director, Harold Becker, had originally wanted to do the picture very "cutty"—just using mostly cuts and not moving the camera very much. But, of course, that works only up to

a certain point, so we actually ended up moving the camera quite a bit. In order to add a bit of excitement to the exteriors, we would lay down track and do some long dolly shots with people.

We used the Steadicam a few times,

but I'm quite sure nobody notices when we used it because it was done so well. It wasn't used to show off the Steadicam, but rather for reasons of practicality, because we had vehicles moving across where dolly tracks would ordinarily be, and



(LEFT) During the night siege, it was expected that it would be possible to use the beam of light from each tank in procession to silhouette the tank in front of it by lighting the fog, but that did not work. Instead gaffer Gary Holt mounted an arc with a generator on a truck which followed behind the first tank, creating the effect shown here. (RIGHT) Setting up for daytime scene inside the walls during the siege. (BELOW LEFT) The sequence in which the general shoots one of the townies. (RIGHT) The indicated source outside the gates was a streetlight.



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things like that. There were also a couple of times within small rooms where we had to make some very subtle camera moves.

Garrett Brown came in and worked the Steadicam when we did the battle sequence and we had to work with gas masks on. It was a very difficult situation, because we were in very thick smoke and Garrett was filming shots of tanks coming straight at him, besides other dangerous things. One time we had to pull him out of the way of an oncoming tank. Another time—I don't know whether it was the tank itself that hit him, or if he collided with somebody—but the filter came flying off the camera. It looked scary in the dailies, but Garrett did his usual outstanding job. Ted Churchill did a few Panaglide shots for us on interiors that were really excellent. He, too, is a terrific operator.

Other than the standard 85, I didn't use any filters in photographing TAPS. Even on other subjects I rarely use diffusion to a degree that it is noticeable. That's just my style. There are other cinematographers who like to use diffusion to a greater degree, but I don't think they use it to be in vogue or necessarily to create something that the story calls for. Many of them use it because it is something that pleases them, something that they have become comfortable with as a style.

As for myself, I find that a cleaner look satisfies me more. I like things to be crisper and sharper and I'd rather try to get the softness with the lighting. I really haven't used heavy filtration to any degree in years, and even then, I've only done it on a couple of pictures. Sometimes I will use a light net when working with female stars—to soften their features, for flattering purposes. But I usually intermix those scenes with scenes that have no filtration, so the diffusion is so light that you can't tell when a cut is made from one to the other.

In this particular picture, I did feel that as stark as I could get it was the best way to handle the subject—and most of the starkness came from the lighting. Of course, this created something of a problem in making prints from a dupe for final release, because the level of high contrast at which I worked didn't transfer as well to the dupe as it did to a print made from the original negative. You lose a little bit of technical quality by doing it that way, but I feel that for this particular picture the compromise was worth it.

Throughout the filming of TAPS I tried to analyze what the light source might have been in each situation and play it from there. This was especially true of the extensive night sequences, each of which represented a different sort of situation. For example, in the sequence when the

police are waiting outside the gate before the National Guard arrives with the truck, I played that as if there were just ambient light coming from a street light outside the gates and from moonlight somewhere in the background.

When the trucks came, I used them to justify the light source and played the effect of headlights on the faces of the students. When the tanks arrived we naturally stretched that to whatever I wanted to do with it. We wanted to get a very scary quality to the beams of light from the tanks and we actually used the tank lights to create those beams. We figured that in order to get the rays of light from the tanks to show up in a defined way, we would have to put smoke into the shots and we were prepared to do that. But as it turned out—the one time we did have some luck—the night we shot the tanks arriving, it was foggy. We had *natural* fog to shoot in that evening. Of course, in order to get closeups and intercuts that would match, we had to use some smoke for those set-ups.

I had figured on using the beam of light from each tank in procession to silhouette it in front of it by lighting the fog. We tried a dry run and it didn't work. The beam from the tank light was just too narrow. Then my gaffer, Gary Holt, came up with a great idea. He mounted an arc on a truck with a generator on it and followed behind the first tank. The arc provided a much more spread-out light source which could silhouette the whole tank and, since the tank was so large, you couldn't see the truck driving behind it. The truck just followed and the operator panned the arc light to follow the tank wherever it went. We made sure our camera was set up so that the tank was always between us and the truck with the arc on it. In subsequent shots we used the actual tank light almost always. For the closeups of the boy dying, I used the arc to pull down on the spot in order to get some control and match the color temperature of the tank lights.

The night work, with all of those low-key situations and huge expanses of area to cover, would have been much more difficult to accomplish had it not been for the sharp, ultra-speed Panavision lenses we were using. They made it possible for us to work under such conditions without using an enormous amount of light.

One of the problems we faced was that after each night's shooting we had to dismantle all of the equipment that we had set up for that night, so that the school could function the next day—and each following night we would have to reestablish what we had started the night before for matching purposes. That was

Continued on Page 416

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Pursued by two "bad guys", The Soldier skis for his life in a wild chase down the mountain, at the end of which his pursuers are wiped out.

"THE SOLDIER" ON LOCATION Continued from Page 381

like the blowing up of the *Vallugabahn* in this picture. The reason for that is that The Soldier knows too much, and the head of the Russian KGB knows that he knows too much—so he has to kill him. There's nothing unusual or unique about that—I'm the first to admit it—but it does work."

I ask him more specifically about his methods of working with Director of Photography Bob Baldwin.

"This is the second film I've made with Bob, and the main thing I tried to do in the script was to be as specific as possible about such things as art direction, what the sets are going to look like and the camera angles I have to have.

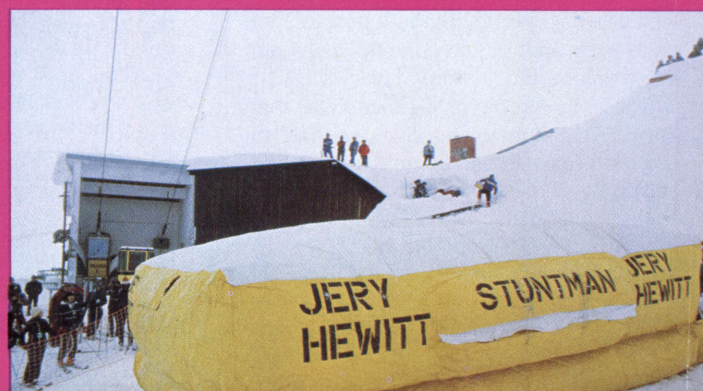
"In addition to that, what Bob and I have had to do in this case was discuss film stock, because this stock is different from the one we used on *THE EXTERMINATOR*. We are using Fuji stock for the first time—and for several reasons. One of those reasons, obviously, was the higher ASA rating. There's no question that you need fewer lighting instruments with 250



Just to make sure the picture-postcard weather is for real after the long wait, Jim Glickenhaus surveys the Arlberg Valley from mountaintop.



(LEFT) Skiers sunning themselves outside the *Krazy Kanguruh* restaurant/disco on the slopes look up to see a skier hurtling down the mountain toward them. (RIGHT) The skier crashes into their midst. (BELOW LEFT) "Have bag, will travel." Stuntman Jerry Hewitt brings along his own bag to break his fall for the sequence in which he doubles for The Soldier when the cable car is blown up. (RIGHT) The bag is inflated, ready for a take.





Sequential photographs showing phases of one of the most spectacular stunts in the picture. Stuntman Jerry Hewitt bails out of the specially built Vallugabahn cable car a split second before it blows up in mid-air. Fortunately, he lands right on target, which is the jump bag he has brought along.



ASA film than with 100 ASA film, and that is a great advantage to us in terms of cost. But the other reason is that in this film we were looking for a sort of ominous, somewhat more somber or subdued look, which we feel can be achieved better with Fuji stock than with Kodak. The Kodak stock is wonderful film and I love it, but its rendering of color is a bit brighter. The Fuji color is more subtle — and that was impor-

tant to us in this film.

"In addition to that, we wanted a very hard look, which means using prime lenses as much as possible for maximum sharpness and no low-contrast filters. We also decided that whenever the camera was not on a tripod or dolly, we would try to hand-hold it.

"The style that I personally like for this kind of picture is hard cuts and very short

cuts. On *THE EXTERMINATOR* our cuts averaged seven or eight seconds throughout the whole film. With an action subject I always try to move things along by quick cutting.

"Also, when Bob and I have big sequences, we try to shoot with multiple cameras. For example, I'll try to get the master and the closeups at the same time. We'll set up five or six cameras and each

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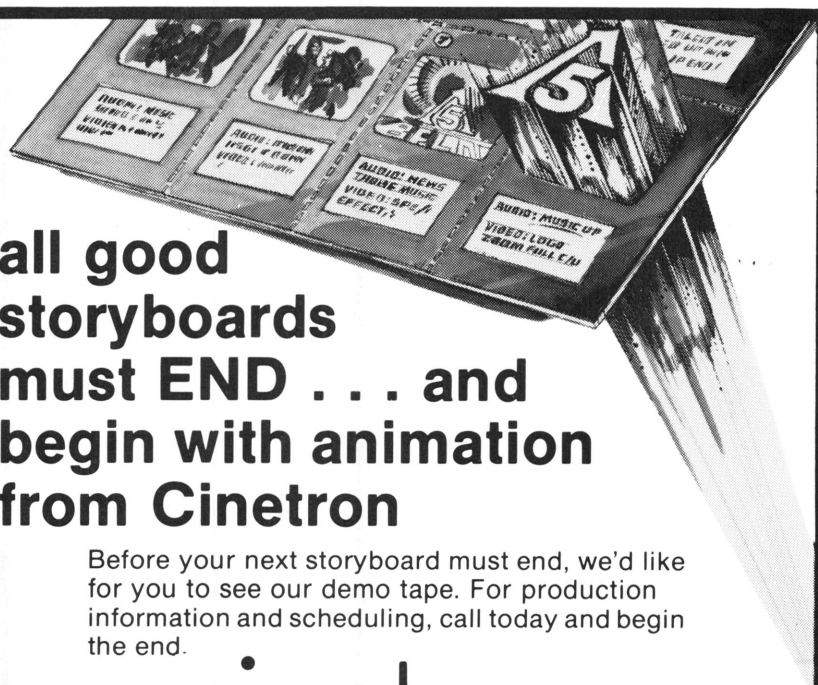
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camera will have a specific job. The thing I like about Bob is that he's highly skilled at mounting a lot of cameras without having them shoot each other. He's also able to get the various operators to understand what we're going for—namely that they don't have to get the whole scene. All they have to get is that little piece that we're looking for. Afterward I'll take a fair amount of time on the set—even though it's very expensive time—to talk with Bob and each operator to have them describe what they think they got. Then we'll decide what else, if anything, that we have to shoot.

"We have often gotten scenes in three takes with six cameras—which is effectively 18 set-ups. I find that often, in terms of the stunts I want to do, people are not that anxious to shut down the entire main drag of Philadelphia for a day, but if I can convince them that I'll shoot it in six hours, they'll let me do it. So I'll always attempt to shoot it in six hours. Bob and I have worked hard together to be able to do that."

SECOND UNIT . . . BUT MUCH MORE

On the day prior to my arrival the sun had smiled on St. Anton. It had been a perfect picture-postcard day, with blue skies and clear air and Joe Jay Jalbert and his crew had gone out to shoot the start of the chase sequence with Jim Glickenhaus on the mountain and all had gone extremely well.

Naturally we all hoped that this good fortune with the weather would continue and that the Muse of the Cinema would keep on showering blessings upon the film unit. But no such luck. On the first morning after my arrival I awaken, ready for a gung-ho day on the slopes with the intrepid filmmakers. I've got my skis all tuned and I'm psyched up for the shoot. But no such luck. I peer out my window to see a flurry of snowflakes the size of rose petals completely obliterating the view of the chalets just across the street.

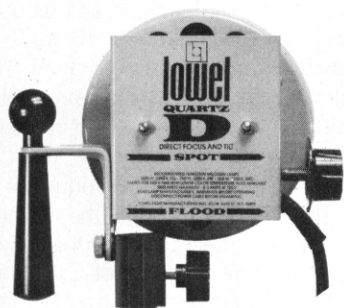
At breakfast everybody is mumbling and grumbling about the weather, but being a young and optimistic crew, they are really not downhearted. Old hands at the game, they know that this, too, shall pass. But how soon?

In the meantime, I take advantage of this down period to talk with Joe Jay and Kim Takal about the background to this shoot and exactly how they plan to handle it.

"Our contact with THE SOLDIER company goes back to October, when, on the basis of work that we had done and shows of ours that they had seen, they discussed the possibility of our shooting this sequence for them," Joe Jay explains.

"The original understanding was that we

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would be just a second unit," adds Kim, "and act as a kind of back-up crew to the first unit on the mountain. But after that first great day of shooting that we've had, Jim Glickenhau and Boyce Harmon, the producer, have recognized the fact that we could add a lot to the sequence by doing it our way and having the space to do it."

"As a result, the sequence has been expanded tremendously," says Joe Jay. "We all see that there's probably four times more here to work with than we had initially envisioned. Now it has become a major sequence and I personally believe that it will be a high point for the entire production, because it's the last major action sequence in the picture."

MIXING 16mm AND 35mm

Knowing that they plan to shoot both 35mm and 16mm for intercutting in this upcoming sequence, I ask about the technical aspects of pulling this off.

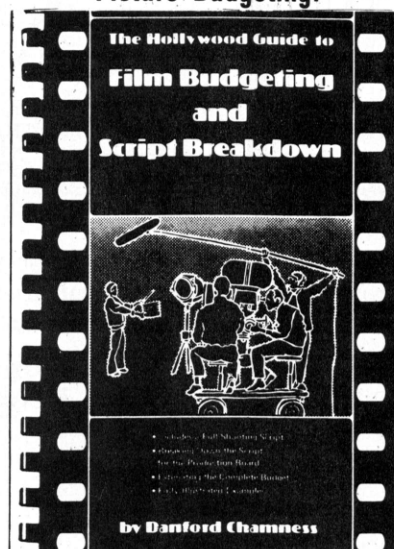
"From our first discussions we all agreed that this sequence should have a certain style," Joe Jay explains, "and that this style would involve trying to really effectively combine 16mm blow-up with 35mm as support material for an action-packed sports/chase sequence."

"When it comes to filming skiing subjects we've certainly had a lot of experience, but this would be a real challenge for us in terms of mixing 16mm and 35mm. We knew that the very idea of it would raise a lot of eyebrows in the filming community, but the fact is that it would be impossible to get the same stylistic effect by shooting the whole thing in 35mm."

"Also, we strongly feel that if it is executed right, we can capture some striking cuts in 16mm to interweave with the 35mm in such a way that this action sequence will add tremendously to the excitement of the picture. There's no other way to get such impact."

"I'd like to add something about this concept of mixing 16mm and 35mm," says Kim. "All of the 16mm we intend to shoot will be very stylistic, as Joe Jay said. It's point-of-view, it's extreme slow motion and it's actually going to be enhanced by the blow-up. Also, since we are doing much more than had originally been planned for us, we're utilizing a lot of the techniques we've developed for 16mm and applying them to the 35mm camera units. For instance, some of the tracking stuff and point-of-view stuff we'll be shooting in 35mm. Some of the hand-held stuff under the lip of the rock jump will be shot in 35mm. That's something you don't ordinarily shoot in 35mm, but we'll be able to because of new and smaller equipment — and just knowing how to do it. As for the 16mm blow-up, our mount shot of a ski

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"We'll be covering the chase sequence master style with two 35mm units that we move up and down the mountain," Joe Jay explains. "We'll be backing all that up by shooting two Photosonics 16mm high-speed cameras on all of our takes. They will shoot with long lenses—probably a 400mm much of the time—and at speeds of 300, 400 and 500 frames per second.

"All we want to see in this sequence is a guy's head going through the frame in slow motion. There is no way that we can say that we'll be able to get a full-frame shot of our skier in 16mm and match it with a similar shot in 35mm. So we are going for the extreme, for the pieces. If you see any more than that the cut is not going to work, because of the fact that we are dealing with a style. We want to see the eyeball, we want to see that ski tip ripple a little bit, we want to see a muscle in a leg just roll a little bit.

"Most of this will be shot high-speed, but we'll also be using the little GSAP cameras that we can mount on a ski tip. These are the little 16mm cartridge-load cameras that we run around and buy at the 5-and-10 cent store. They're expendable and we go through them so fast that we're constantly scouring Los Angeles and New York for more GSAP cameras."

BLOWING UP THE VALLUGABAHN

Having paid a visit to the shed where technicians are building a mockup facsimile of a *Vallugabahn* cable car to be blown up in the picture, I ask Joe Jay and Kim to tell me how they plan to cover that segment of the shoot.

"That's the big sequence in terms of logistics and people," says Joe Jay. "It entails blowing up a passenger *bahn* and having a stuntman fall 70 feet into a drop bag, with the chase continuing on from there. It's the biggest stunt for us to cover, because we're going to try to use five 35mm cameras and four 16mm cameras, three of which will be shooting in ultra-slow motion."

It sounds like a One Take situation, but my two companions seem quietly confident that they can pull it off.

"The key element is the people we work with," Kim explains. "We really are a team, and the best part of it is that we've been together so long that there is complete understanding and communication when we

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talk to each other. Independently we could all produce films on our own. Therefore, each one of us totally trusts, and is capable of relying on, the other."

"I'd like to comment on some of our key people," adds Joe Jay. "Steve Collin has been with us for a long time and has shot a lot of our sports events. He can be called a director/cameraman by anybody's definition. The Nelson brothers, Tyler and Beaver, from Boise, Idaho, are tremendous filmmakers in their own right. They are, without exception, the foremost bird photographers in the world. They train eagles and Peregrine falcons and we work with them all the time. Erich Lackner is a famous mountain climber, based in Vienna, who has been with our unit for years. The bottom line is that the majority of people who work with us are filmmakers unto themselves. All of us write, all of us edit. We've all spent endless hours at the Steenbecks and KEMs, and have all sat down and written our own scripts. We've all shot plenty of footage and gone back and said, 'Now I know why I don't have it.' The best cameraman is an ex-editor.

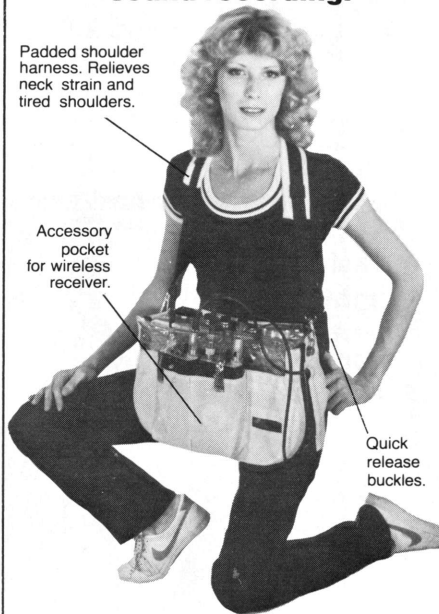
"But this kind of development of people adds to our unit's efficiency. We've done half-hour television shows in a half-day that would take other crews two days, just because the rhythm and the communication have been worked out. We have a crew that, in terms of filming winter sports, I consider to be the best in the business. We've been doing it for 12 years. We move the fastest. We know how to get in there, get the shot and get out, so that within the course of a day we can probably do more set-ups than anyone else under the same circumstances.

"We use all the little tricks and tools and techniques that can add impact to a given sequence—and that's what we're after. We're after *excitement*—and something that's going to be a real highpoint of this picture. Now it's up to the weather. We've got to just hang in there and grin and bear it."

Which is exactly what we do for the next few days. Each morning the equipment is loaded into the cable car and hauled up the mountain, but the weather continues to be "filthy," as they say in England. We congregate in a private dining room of the Galzig restaurant halfway up the mountain, waiting for a break and amusing ourselves as best we can. Jim Glickenhau materializes a guitar and treats us to a bit of the old Segovia. Assistant cameraman Rick Niles, who looks like a redheaded lumberjack, sings a hilarious version of Jimmy Buffet's "Buddy Bear." In the evening we eat dinner and watch ski movies at the "Krazy Kanguruh," a restaurant/disco perched on the slope. It's all great

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fun, but it isn't getting any film in the can.

Finally, one morning, it is announced that "rain or shine" we're going to shoot. It's desperation time, but even so, the fog is so thick that there's no way a shot can be made. I ski the mountain, but visibility is so low I practically have to do it in Braille.

It's then that I realize that I must leave. Otherwise there will be no *AMERICAN CINEMATOGRAPHER* next month. I'll have just one week of around-the-clock work in Hollywood to "put the magazine to bed" before taking off to cover the Manila Film Festival in the Philippines.

I depart most reluctantly, not only because Nature has frustrated my attempt to get the complete story, but because I feel sad at leaving such a great group of people. I've just gotten to feel like one of the family and it's time to go. But Joe Jay promises me faithfully that our readers will not be cheated out of the ending to this story. He will provide me with a *postscript* describing in precise detail how the shoot goes—when it goes.

POSTSCRIPT

By JOE JAY JALBERT

After the people from *THE SOLDIER* company made their location scouting trip to St. Anton in November, they realized that they had a lot more there to work with (and could shoot a much more dramatic sequence) than had been originally anticipated. What we had in mind now was the blowing up of the *Vallugabahn* cable car, instead of simply having a guy jump out of a chairlift. There's a world of difference between the two. At any rate, production was upscaled by double, if not triple.

My arrival at St. Anton on January 6 was in the midst of a very foggy, snowy situation, but we weren't scheduled to begin shooting until the weekend of January 9 and 10. However, the next morning, January 7, dawned with sunny weather and crystal blue skies, so I said to Jim Glick-ehaus, "We've got to shoot, because we've got sunshine."

It turned out to be an incredibly productive day. We shot seven or eight different set-ups of the chase sequence. This marked the first time that Jim and I had worked together and we were both very enthused.

On Friday, January 8, we woke up ready to go again, but the mountain was fogged in and it was snowing wet, heavy snow. We couldn't see a thing.

Saturday, January 9, turned out to have fog, wet heavy snow, with rain at the lower altitudes.

Sunday, January 10—more bad weather.

Monday, January 11. The weather was

not ideal. We started getting a little bit behind schedule. In the afternoon the weather broke slightly and we shot for approximately half a day through intermittent bursts of light.

Tuesday, January 12. More bad weather and the completion guarantor was starting to get a little antsy, not to mention us. We set up in the afternoon at the top of the Valluga and making the equipment move up there was a major logistical accomplishment in itself. We sat there for four hours and watched the clouds roll in.

Wednesday, January 13. We got up at 5 a.m. and it was foggy and snowing. We couldn't see five feet. We heard rumors that it was clear on top, but nobody could believe that. All we could do was make the move up the Valluga and keep our fingers crossed. At about 7:15 we caught the first *bahn* with about 80 people, all the cameras, all the gear—and we still couldn't see five feet. The work crew stopped at every cable tower and climbed out the top of the *bahn* to check the cable and the wheels and cogs. It took quite a while.

The first car went up to the Galzig and we looked up, but couldn't see five feet. Everybody thought, "Here we go again!" The next cable car, the Valluga I, which goes to the top, left filled with production people. I stayed behind with the radio and caught the next car. All we heard over the walkie-talkie about 10 minutes later was screams and yahoos and people jumping for joy, saying "It's perfectly clear up here!"

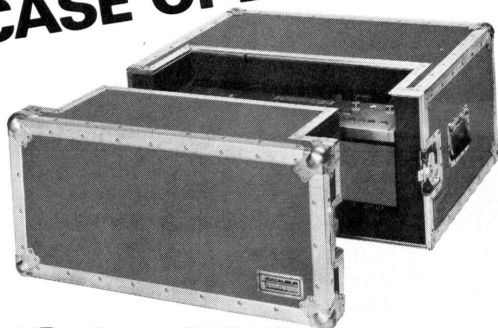
About halfway up on the *Vallugabahn* we broke through the clouds and there was an absolutely perfect pristine blue sky without a wisp, while below a sea of clouds was rolling through the Arlberg Valley as far as the eye could see. It was like a revelation taking place.

Since the weather was so fine, the pressure was relieved and we started setting up to get the big explosion sequence shot. All the units got up the mountain, everybody was set up, all the 35mm and 16mm cameras were in place, and we were hoping for an 11 o'clock shot.

Because of the number of cameras involved, the complexity of rigging the explosion itself, plus getting the air bag in place, it was about 1:15 before the explosion went off. All cameras were rolling, all cameras got the explosion and the jump went perfectly.

The big one was "in the can," but we now had to reset and go farther up the Valluga on the smaller cable car and shoot the start of the downhill chase sequence, which was quite complicated in itself. It basically entailed lowering the stunt skier down onto a section of completely virgin snow. We had to gather up the debris from the actual explosion, which had taken

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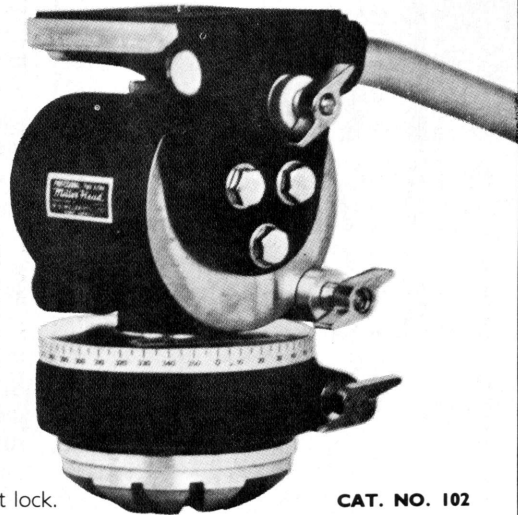
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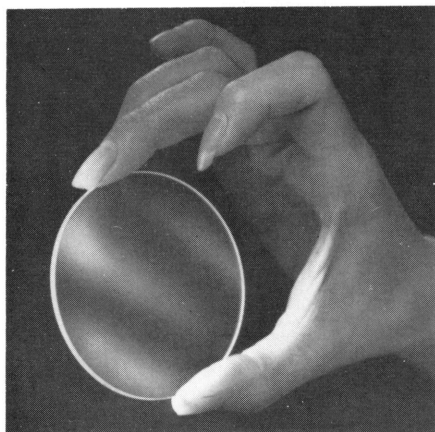
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place at a lower elevation, and then had to "dress the set" to look like the explosion had taken place almost at the top of the Valluga.

Having lowered the chase skier down, we had to reset cameras not only on the top, but we had to set four cameras at the bottom station, because once the chase started, the skiers would ski through two very narrow rock crags, down through a very skinny slide chute toward the lower camera positions.

What made things kind of tense was that we knew that at 3:15 p.m. sharp we would absolutely lose our light—and it was already getting close to 2:30. Our chase skiers were in place, but the main problem we now had was repositioning the blown-up Valluga car on the cable track in an exact position above The Soldier, who had been lowered down with the debris and placed in the fresh snow. Taking the *bahn* back up to the top, re-rigging it with smoke bombs and then lowering it down on cue and having it stop while still smoking in the exact position was almost the Achilles Heel of the whole shoot.

We tried it once, but by the time the *bahn* had moved down over the stunt skier all the smoke had dissipated and basically we had no match. It was now about 3:05. All the camera units were set. I was at the top with two cameras and Jim Glickenhaus was at the bottom with four cameras, calling "action" over the walkie-talkies—which presented further complications. When we went for the second take I didn't know that, with eight or maybe ten minutes maximum of sunshine left, our effects man was down to his last smoke bomb.

They re-rigged the blown-up *bahn* with the smoke bombs. Effects ignited the smoke bombs on cue, but the *bahn* got stuck in the station and somehow got going about a minute and a half late. It hadn't really stopped yet over the skier when I called "action." However, Jim Glickenhaus with the lower camera unit did not hear my call. They weren't even rolling cameras yet, but fortunately they could see the smoke from the *bahn* and all the lower cameras turned on. When I called "action" (with about four minutes of sunshine left), the skier took off and the *bahn* was overhead smoking. The two chase skiers entered the frame, came down the mountain behind him toward the rock precipice and dropped over the edge into new snow that had never been skied and was definitely avalanche-prone. There was substantial risk involved.

One of the skiers went head-over-heels through the rock precipice and the other two skied down past the top cameras. The bottom cameras, just because they had

seen the smoke, had been rolling, and so, by this stroke of luck, we got the start of the chase in the can. The skiers passed the bottom cameras—and the sun went down. There could never have been a Take Two on that action.

The next major set-up was at the Krazy Kanguruh restaurant near the bottom where The Soldier (on skies) does his 360-degree "helicopter" turn in mid-air, whipping out his submachine-gun and shooting the chase skier as he whirls around. Thursday was a perfect day, but there was a lot of choreography and many extras involved.

John Eaves, the stunt skier doubling for The Soldier, was just recovering from a bad fall which he had suffered earlier in the week while practicing the 360-degree "helicopter." He had fallen on his face and had ended up with a broken nose and both eyes closed. On top of that, he had pulled an old shoulder injury that was now giving him problems. Today he would be back on skis for the first time since the accident.

The stunt we were going to film was very intricate and John, a champion skier of outstanding ability, is probably one of the few skiing stuntmen in the world who could pull it off. After he had taken four or five practice jumps he was feeling well and

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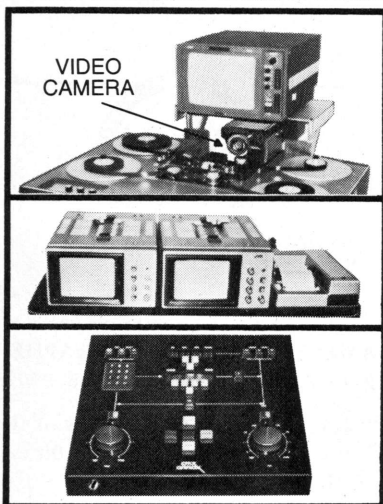


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had his old form back, but because of the old shoulder injury, pulling out the gun and spinning around with it was a lot more difficult for him.

As the day wore on he was making longer jumps. We did a good 10 or 12 takes of the actual "helicopter" and the shooting of the chase skier. That took up most of the day.

On Friday, the second unit with myself and our stunt skiers had a full morning in perfect sunshine to continue our shooting. We filmed POV through the trees, POV chase scenes, POV cat-track scenes, and really put some polish on the downhill chase sequence. We shot eight or ten additional set-ups on the chase. With the help of approximately five additional skiers per camera unit, we could move and set up in a different location and get one full set-up shot in about an hour and a half. That's really moving and shooting, with two full 35mm units and a 16mm slow motion unit.

For each 35mm camera changing locations involved having one guy to carry the tripod, one guy per lens and one guy to carry the camera body. These people all had to be excellent skiers because we were skiing through three feet of new snow, some of which was deep and heavy, basically crud. But since we'd been doing this in dry runs for a week, we really had the motion down, so it was a matter of being able to work extremely fast, being highly mobile, and not having to take four hours to do just one set-up.

Saturday, January 16, was a day that involved the combined efforts of the first and second units. We were to film what was probably the biggest stunt of the downhill chase sequence, which we referred to as the "rock jump," and which is exactly what it sounds like. There was a cat-track trail that went up the side of the mountain and there was a big rock overhang above it. The Soldier, plus the two chase skiers, were to ski off that rock overhang, soaring over the road and a snowcat underneath, and land on an extremely steep pitch that I would compare to the outrun of any 90-meter or 120-meter ski-jump hill that you would find anywhere in the world. It was extremely steep with a long gradual outrun that went through the area of one T-bar, plus the middle of a very heavily skied piece and then down into the Gampen restaurant area where you had 250 to 300 kinds of beginner/intermediate people skiing. The complex choreography involved, plus the fact that we would be shooting with four 35mm cameras and two 16mm cameras, indicated that this segment would keep us busy for a full day.

We shot various insert cuts and POV tracking shots of The Soldier and had

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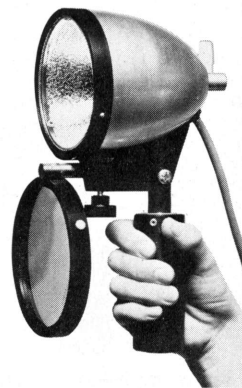
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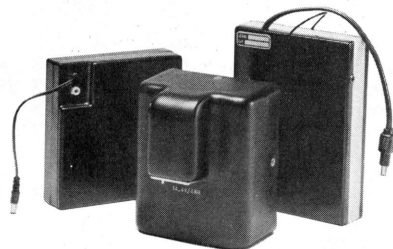
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those pieces in the can by 10:30 a.m. To set up to film the actual jump took us through the rest of the morning and into the early afternoon, so it was about 1:30 or 2:00 before we even had a trial jump. What made this stunt precarious was the fact that Eaves and the two chase skiers had never gone off the rock, even though we had been prepping the sequence for ten days. We had never had the weather for it, and when we did get the weather, we were busy shooting other sequences. So this would be the first time for all of them going off the rock jump.

What they discovered was that because of weather conditions, by late afternoon the snow would have softened so much that when they actually lit they would dig in a good 8 to 12 inches — which would make for a very precarious landing. With this in mind, John Eaves and the chase skiers wanted to do a trial jump.

I talked to Jim Glickenhaus and Bob Baldwin, the Director of Photography, and said, "When they make the trial jump we'd better shoot it, because judging from what I've seen happening here, I wouldn't be surprised if on the first take all three of them go ass-over-teakettle."

They went for the trial jump and we had all cameras going. We didn't know what was going to happen, but we realized that it might be our only take and that we might have to piecemeal it together, due to the fact that if the lead skier happened to fall there would be no way to stop the two chase skiers, since they would be so close behind him.

On the trial jump John Eaves made it. The first chase skier (who was right behind him) made it. The second chase skier (who, in the script, is supposed to fall) actually fell without meaning to. He took an egg-beater like no one would believe. Fortunately he was alright, and we had one sequence in the can. The only problem was that on the trial jump we hadn't brought the snow-cat in.

As the sequence is cut, the snow-cat (unseen by The Soldier until the very last minute) is coming up the cat-track. There is only room for the snow-cat on the trail; its blade is actually hanging over the edge. That's what diverts The Soldier up over the rock and the snow-cat, which is supposed to be directly under him at that point.

So we went for a second take and all three skiers made the jump and got down safely. We didn't have the second chase skier fall because we wanted to save that for the last take.

Going for the last take, the second chase skier landed and, on purpose, took what was in terms of all the falls I've filmed (including the World Cup) the most incredible egg-beater of all time. He hit on his

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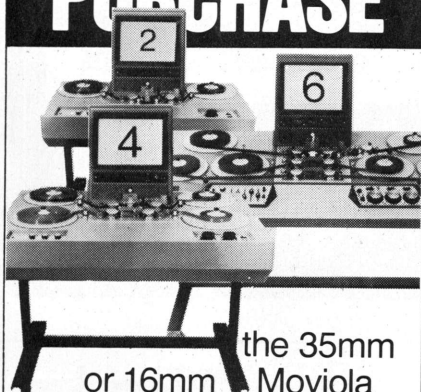
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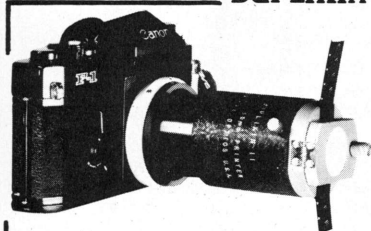
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feet, went over head first, and his skis just spiralled into the air as he went end-over-end down the steep slope. He came to a sliding stop and lay there in the snow for a while, as per his instructions. "Cut" was called and he raised his head up, shook the snow off, and had a big smile on his face—which was a big relief to me. So the rock jump was in the can, with nobody hurt and another day of sunshine.

Which left Sunday, January 17. With about 95% of what we had come for in the can, we had only to shoot the rock-climbing sequence. Again the weather was perfect. Erich Lackner, who is a world-famous mountain climber and cinematographer from Vienna, filmed the sequence and doubled it. The helicopter shots from above the *Vallugaspitz* worked fine because it was so perfectly clear that you could see down the valley for miles.

Working on *THE SOLDIER* was an exhilarating experience. I only wish that they could have budgeted for a bit of extra time, so that the second unit could have had another three or four full days to shoot the actual chase and go for those really esoteric moments that take time to record. As it turned out, a lot of the second unit and first unit time was combined, so we really had only a day and a half to put the chase sequence in the can. ■

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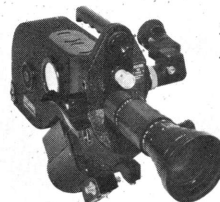
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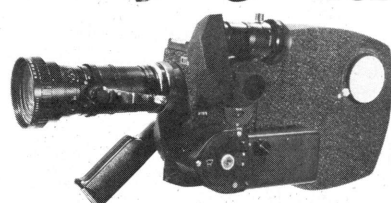
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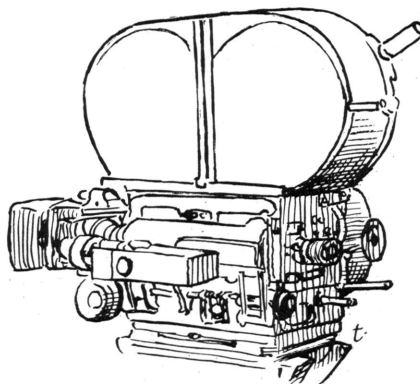
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FILM PRODUCTION
CONSIDERATIONS IN THE 80s
 Continued from Page 339

of a film—not to negate the work of the writer, the actors, the cinematographer and the other people involved—but it is the producer and the director who start from the beginning, to employ the services of the writer, to develop the script, then to cast it and go into pre-production planning.

As I say, I believe it is the pre-production planning that is the most important aspect of filmmaking. Based upon my own experience, I can tell you that my most successful films have been those that were made when I've been completely prepared going in. I've got a pretty good track record, but I have had some failures, and almost every time I have made a film that has not done well, I can look back in the pre-production phase and say that I wasn't quite ready. I should have waited a few more weeks, another month, maybe even another couple of months to completely develop my project before I shot. Pre-planning is the essence of production.

As to the financing, you get into a number of things I can touch on, particularly in the area of co-production, which may be of interest to some of you, and which is an increasingly vital part of the filmmaking process. As the cost of making films soars higher and higher, it becomes more and more expedient for producers from different countries to combine their resources—to make bigger films, with each one of them contributing. I can give you some examples of the way I've worked here in Manila with Cirio Santiago, and the way I've worked in Europe and South America and in other parts of the world with other producers on a co-production basis.

My method is generally to start with the script. I develop the script myself, and usually, here in Manila, I will put up the script, the director, certain American actors and a certain amount of money. The "below-the-line," or physical aspects of the production, are put up by, in this case, the Filipino producer.

The key to success here is pre-planning. I've seen a number of international co-productions fail because, in the planning stages, the film was created without anybody being quite certain about how it happened. An attempt was made, for example, to develop a script that would appeal to the American market, yet, at the same time, appeal to the Southeast Asian market. But the finished picture didn't hit either market. Somewhere something got lost, and the result was a film that wasn't quite right for the American market, nor was it quite right for the Southeast Asian market.

The key to avoiding such a situation must be for each producer to understand what he needs within the production and make certain that the overall film fits into his particular market. For example, on

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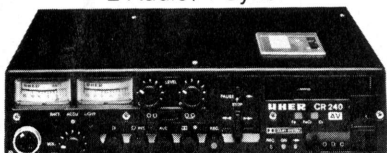
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several of the films we have done here in Manila, we have shot several additional scenes that might be used *only* in the Asian version of the film and other scenes that might be used only in the American version.

While the majority of scenes in the picture might be the same for both versions—let's say that in a 100-minute film there might be a commonality of 80 to 90 minutes—there might also be 10 to 20 minutes of differing interpretations of scenes, recognizing cultural differences in the respective countries. At other times we have been able to make a film which, in our opinion, would play exactly right for both markets with none of the scenes being different. So there are no set rules.

To illustrate that point, as I talk here I am telling you all the things I do the way I've been doing them for many years. And yet it's possible that I might walk out of here immediately afterwards, sit down with a producer to set up a co-production and do it in a different way, throwing out everything I'm telling you at the moment.

The main thing is to understand certain aspects of production and then be flexible—ready to vary the procedure when necessary. For instance—coming back to the physical production—when I talk about the importance of pre-production, it means knowing every possible aspect of the film, even down to the point of having the director sketch the majority of his shots. Obviously, certain things must be decided before you shoot. Your script is established. You have set your crew. You have worked out the details of your locations—or of your sets, if you are going to be shooting in the studio—or a combination thereof. You've worked out down to the last detail the props, wardrobe, set dressings—all of these elements. Music must be considered *before* you shoot the film, not as an afterthought.

When all of this has been done and you are ready to shoot, you must then realize that something happens during the shooting of the film. A film grows organically unto itself and you start to vary a little bit—and that's fine. If you have your framework well worked out and the director and the actors get ideas on the set, you should not be afraid to depart slightly from your agreed-upon program to take advantage of those ideas and situations that come up.

Where you can get into trouble is to function according to one of two extremes. One extreme is to stay so rigid to your pre-production planning that you strait-jacket the creative energies during shooting. You must be flexible enough to let new ideas come from shooting. The other danger is to be so open to those new ideas that the original idea gets lost. I've seen very good projects take such a different shape during shooting that the final shape varies too much from the original planning. So the main thing is to follow your planning, but be flexible enough to allow for slight varia-

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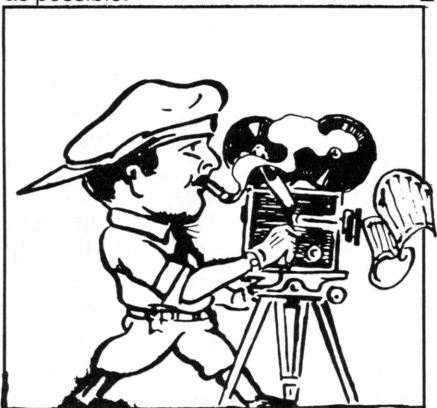
tions and to take advantage of those moments of improvisation on the set—or those unexpected problems that sometimes make your pre-planning impossible to follow.

There is a classic situation in shooting low-budget films when you are on location and you know that you have to leave the location that day because you must be on another location. The sun is going behind the mountain in ten minutes and you have three more shots to get. The director had better be very fast and resourceful at a time like that. There are a number of things he could do, one of which might be moving the camera instead of making three separate set-ups. Hopefully such a thing won't happen, but it can occasionally happen and you must be prepared and flexible enough to deal with it.

I might mention one other thing in regard to co-productions. It is a technical thing, rather than a creative element, but recognizing it can save a lot of arguments later on, besides enabling you to make other films. There are various ways—and this really is part of the production process—of deciding in advance what will happen to the film after it has been completed. I believe that filmmaking starts at the very beginning of planning and continues until the picture is in the theater, or on television, or on a cassette. It is a mistake for the filmmaker to say: "I will just concern myself with this one narrow (production) aspect of the picture." I think you must follow your film from the beginning through to the end—and the end means being aware of the way in which the film is going to be distributed throughout the world.

One way is for the producers to pool their resources and agree that they will each take a certain percentage of the entire world market. Another way is for each producer to say, "I will take 100% of my own individual territory. For example, in Manila you might say to a Filipino producer, "You will get all of Asia." The American producer will possibly get all of the Western hemisphere, with some other division taking place as to the rest of the world.

This, too, is part of production planning—and it *should* be planned. It should be decided upon in advance as thoroughly as possible.



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PHOTOGRAPHING "TAPS"

Continued from Page 399

quite a task, especially when you consider that we had generators and cables and mikes stretched out for hundreds and hundreds of yards in all directions.

The opening parade sequence posed some interesting photographic challenges. We used multiple cameras and tried to make do with as few takes as we could. We had three cameras shooting all the time and sometimes we would use the long end of the zoom to grab shots of the groups—sometimes without their knowing it (documentary style). But at other times we would set up our principals, but photograph them the same way. We felt that the long lens look, intermixed with quite a few wider angle shots, would give our photography of the parade more of a documentary quality, rather than having it look like it was staged.

I think it worked out very well, considering that we had changing light situations constantly. It was just horrendous; the sun would be in and out all the time. Some of the cuts we had to shoot in bright overcast, because our tight schedule wouldn't permit us to spend any more time on that sequence. I tried to use as little added light as possible on the parade—just a couple of white boards reflecting once in a while to keep it as realistic as possible. I didn't try to light up the shadows underneath the hats that much. I let them go stark, because I thought that would create a more realistic look.

TAPS represents the greatest load of night work I've ever had to face on a picture—both in the amount of time it took and the scope that it covered. Normally, when one is confronted with night work on a large scale it is usually in a city where there are buildings and obvious light sources and areas to give you great depth. In this particular picture everything was happening within a fairly confined situation, but in a large open area. Under circumstances like that it can be murder if you don't have a really crack crew. I was fortunate enough to have a wonderful gaffer, Gary Holt, and his crew, and my Key Grip, who is just incomparable, Bobby Rose, and his crew. They did an outstanding job of working with one another and getting everything done. I'd like also to commend my First Assistant Cameraman, Rob Hahn. The demands that were put on him for focus-pulling in those extreme low-key situations were tremendous. Because of his expertise and diligence we were able to hold sharp focus all the time.

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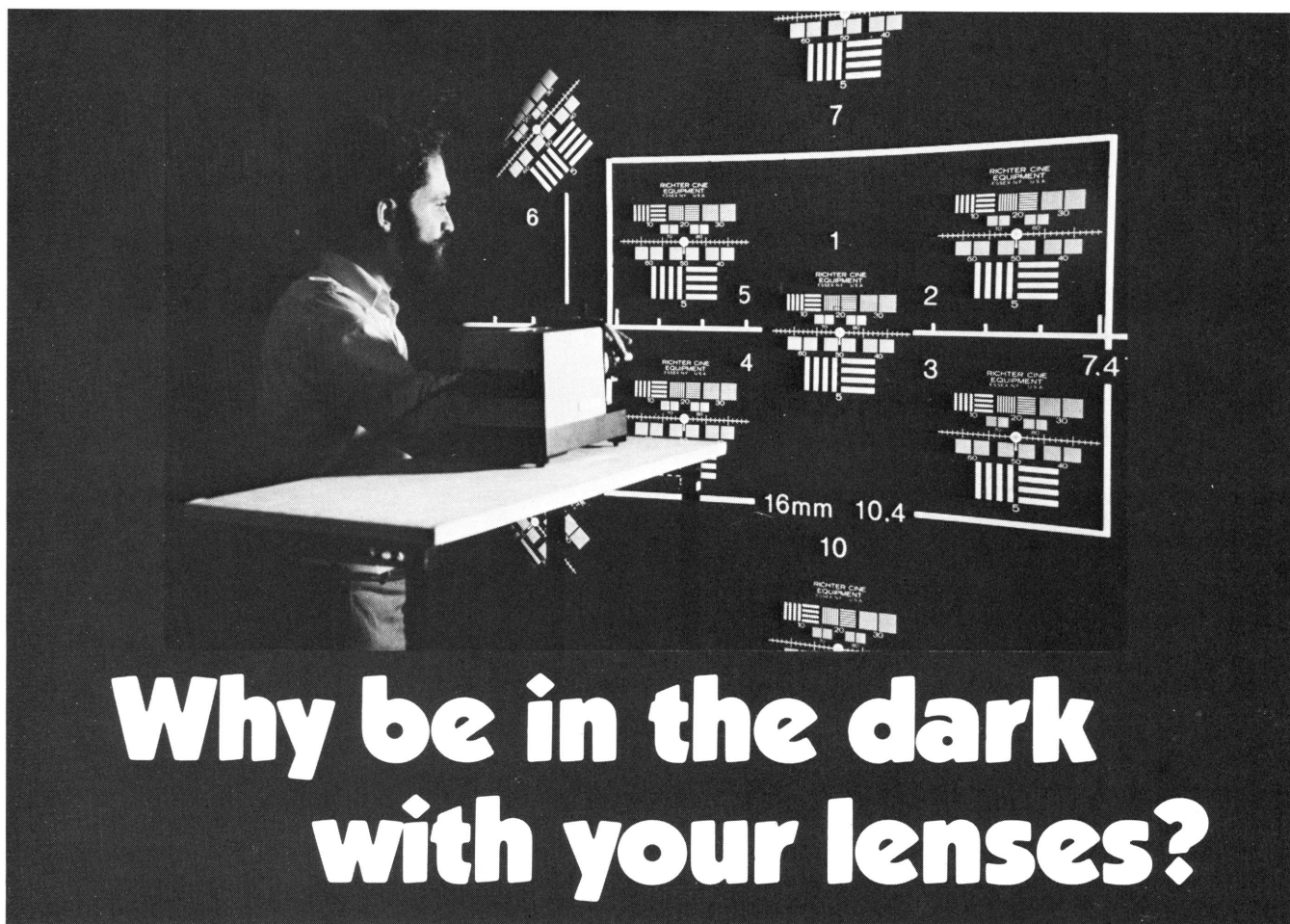
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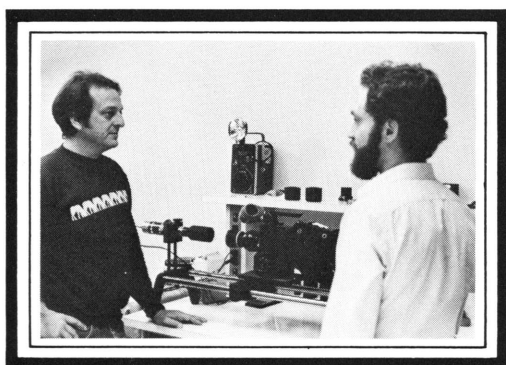
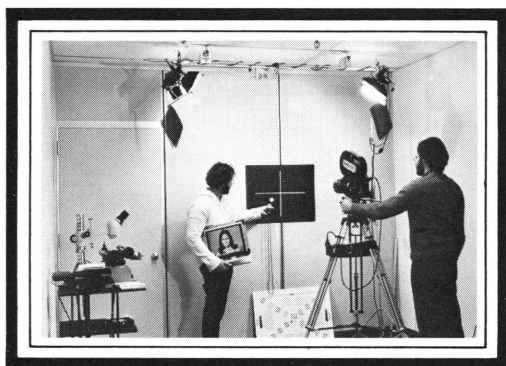
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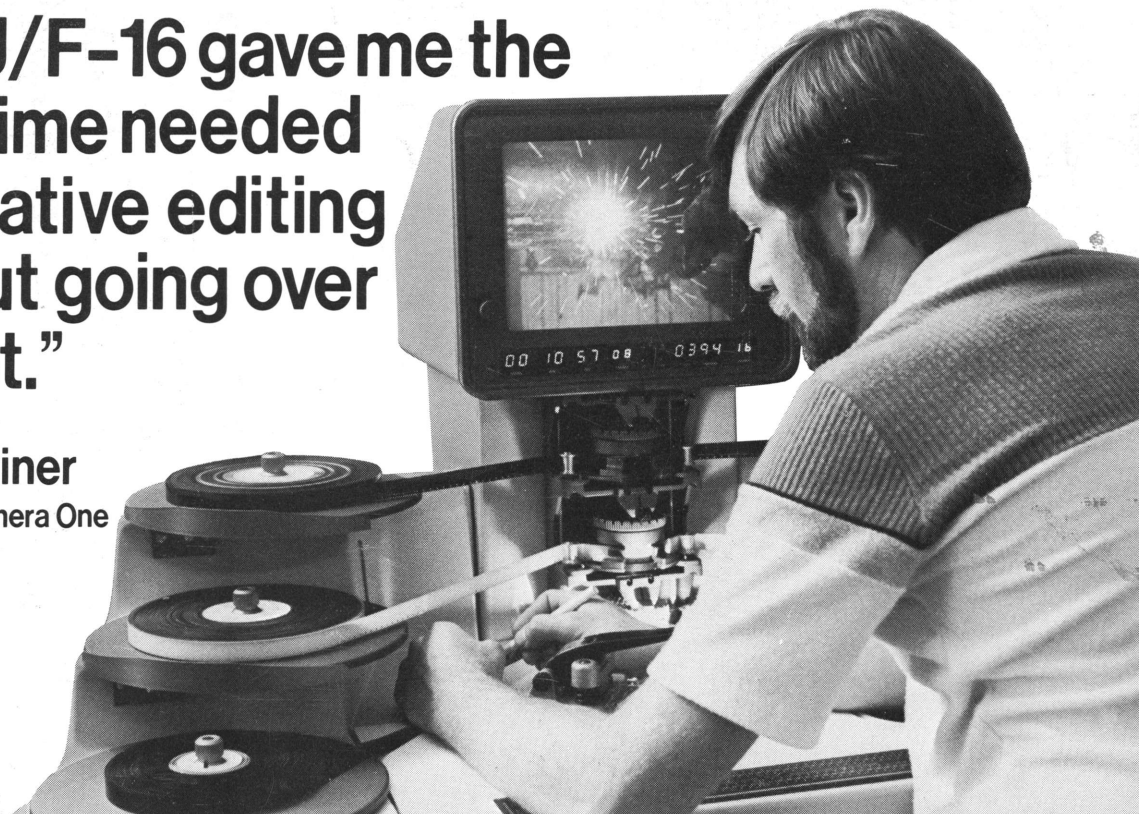
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"The U/F-16 gave me the extra time needed for creative editing without going over budget."

Gray Warriner
President, Camera One
Productions



"Having reliable editing equipment to work with is just as important as having an absolutely reliable camera. Because the editing room is where the real work begins. It is there that you can make or break a film!" says Gray Warriner, the Seattle-based filmmaker whose recent industrial documentary *"Protein From the Sea"* (made for Alaska Native Film Productions) has already won several prestigious awards, including the Cine Golden Eagle, the Indy Award, and the Eastman Award.

The U/F-16 to the Rescue

"I had always planned on buying a good 16 mm editing table. I was still researching the market when, during the post-production on *'Protein From the Sea,'* two rented flatbeds broke down on me: one right after the other. The film absolutely had to be finished on time. And the deadline was approaching fast.

"I needed a dependable machine. The simpler, the better. While the U/F-16 editing console did not look like a conventional flatbed editor, there was Cinema Products' reputation for innovative, yet rugged and dependable equipment behind it.

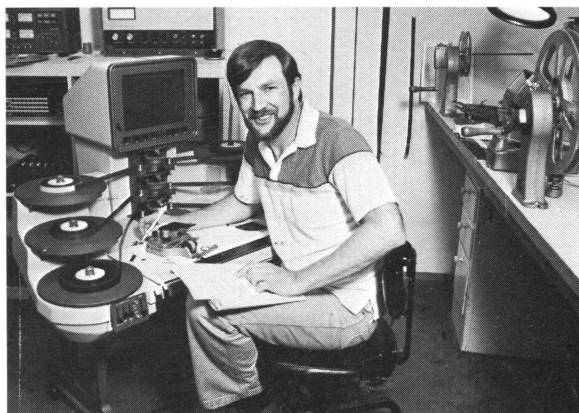
"I got my U/F-16 by airfreight two days after I ordered it, and was able to complete the film on schedule.

A Dependable "Upright" Flatbed

"What makes the U/F-16 so dependable is that it is basically a

mechanical system, combining the best features of an upright editor with the sophisticated features of a modern flatbed. No torque motors, no complicated relays, no extraneous electronics.

"I doubt that there is a simpler



threading path possible. There is only one large drive sprocket. And the three-tiered arrangement of the platters means that you don't have to snake the film around idler rollers to get to the picture or sound heads. When you make lots of quick cuts in a film like *'Protein From the Sea'* that means, literally, hours of saved time!

"The offset stacking of the film paths means that everything is close to you, within easy reach. It also provides for more available working space than you normally get even on larger tables.

"An extra bonus is that its lightweight, compact design also makes the U/F-16 very portable. It fits

through standard doorways, and can be easily transported in a small van. Even in a mid-sized passenger car, if need be.

Simple to Service

"You don't have to be a technician to service the U/F-16. If a belt works

loose, you can check it out immediately without calling in an electronics engineer. Everything about the U/F-16 is readily accessible. The owner's manual covers almost everything that can possibly go wrong. If you can read, you can fix it. It's that simple.

"Besides, the CP service people are only a phone call away. If any real problem were to develop, they could talk me through it. If the trouble were in any of the modular electronic

circuit boards, I could simply pop it out and pop in a replacement board.

"There is no question in my mind that much of the success of *'Protein From The Sea'* is due to the U/F-16. It gave me the extra time I needed for creative editing without going over budget."

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